CORE LIST

1971 Report of

EGG PRODUCTION TESTS

United States and Canada

RANDOM SAMPLE EGG PRODUCTION TESTS

Two-Year Combined Summary, 1969-70 and 1970-71

Procedures for Computing Combined Summary

Range Group Rankings, 1970-71

Supervisors, Entrants, and Management, 1970-71

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ANIMAL SCIENCE
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AGRICULTURAL RESEARCH SERVICE • U.S. DEPARTMENT OF AGRICULTURE

Egg production tests are designed to provide poultrymen, hatcherymen, and breeders with a reliable guide to the performance of poultry stocks offered for sale. This publication contains information on many egg production traits that are of economic importance to the trade. The data were compiled from the records of official Random Sample Egg Production Tests conducted in the United States and Canada. The data resulting from these tests have been analyzed statistically by Biometrical Services Staff of USDA's Agricultural Research Service, Beltsville, Md.

The publication of this report is based on recommendations of the National Committee on Random Sample Poultry Testing and the Council of American Official Poultry Tests. Information in this report was compiled by the Poultry Research Branch, Animal Science Research Division, Agricultural Research Service from data furnished by Test Supervisors.

The publication of this report does not imply approval or endorsement by the U.S. Department of Agriculture of any of the stocks mentioned.

CONTENTS

This report is divided into four sections:

1. A 2-year combined summary of the data obtained in the 1969-70 and 1970-71 Random Sample Egg Production Tests. These data were treated by acceptable statistical procedures that allow the reader to compare directly the stock entered in the various egg production tests in the United States and Canada.

2. An explanation of statistical procedures that were used in computing the regressed means and confidence limits of egg production traits evaluated in the 2-year combined summary.

3. A range group ranking for stock that was entered in 1970-71 Random Sample Egg Production Tests. The ranking shows the performance of each stock by traits compared with that of other stock in the same test.

4. List of stocks entered in 1970-71 tests and some of the management conditions at the test during the 1970-71 test year.

TWO-YEAR COMBINED SUMMARY FOR TEST YEARS 1969-70 and 1970-71

Entries in the various tests start with a random sample of hatching eggs or chicks of the stock to be tested. Samples are drawn according to prescribed methods to ensure that each entry is typical of the stock it represents. All entries within a test are treated alike with respect to housing, feeding, management, and disease control in order to avoid differences in performance that would be due to environment.

All tests are conducted according to these basic principles. However, even the most carefully designed and conducted tests are influenced by errors of two kinds. The first kind of error is the chance deviation or unavoidable "sampling error" made when a small sample of eggs or chicks represents an entry. The other kind of error is due to uncontrolled or unknown environmental differences between entries that occur in spite of all efforts to treat all entries within a given test as nearly alike as possible. The differences between the results for two entries in a single test for a single year may be due to these chance variations rather than to a real difference in the performance capabilities of the two stocks. The effect of such errors in comparing stocks can be materially reduced by basing comparisons on the combined results of several tests over 2 or more years.

If all entries compared were entered in the same tests in both years, the simple averages could be compared directly without adjustment. However, differences among tests and between years and those caused by climatic conditions and other environmental factors affect the results. As a consequence, a direct comparison of the test results of two stocks in different tests or in different years may be misleading. Therefore, to present test results in a manner that will allow sound evaluation of all stocks tested, the results were combined, by stocks and by years, and were adjusted by accepted statistical procedures for test and year differences and for variation in amount of information per stock. The results of these computations are published as the "regressed mean" for each trait for each stock that was tested (table 1).

The performance data (regressed means) reported in this summary are derived from the results reported by the individual tests for each of the past 2 years. It is unlikely, however, that the means for any stock, even though entered in only 1 test each year, will coincide precisely with the 2-year average performance data as published by the test. The variations are due to adjustments for test differences, year difference, the number of tests and of years entered, and the number of replicates per test. These statistical adjustments allow predictions of what the average performance would have been for each stock had all stocks been entered in all tests each year.

The statistical treatment applied to the test data is designed to reduce the influence of nongenetic variations. This cannot be accomplished perfectly, and consequently, estimates or predictions of performance cannot be made with absolute precision. However, reliable predictions, within prescribed limitations, can be made as to whether a difference in the reported performance of stocks represents a real difference in their performance. These predictions involve the use of the confidence limit values that have been computed for each trait or performance factor reported.

A brief explanation of the statistical procedures used in computing the regressed means, confidence limits, and performance index is provided in the section entitled "Procedures Used for Computing Combined Summary Values."

The following example illustrates the compilation of the 2-year combined summary. This and the related explanation will help the reader to use and interpret the data in table 1.

(Illustration of regressed means and 80-percent confidence limits as they might appear for a few traits)

| STOCK CODE | BODY WEIGHT (pounds) | | FEED PER POUND OF EGGS PRODUCED (pounds) | | EGG WEIGHT (oz./doz.) | | LARGE AND EXTRA LARGE EGGS (percent) | | ALBUMEN QUALITY (Haugh units) | | BLOOD SPOTS | | | |
| | | | | | | | | | | | 1/8 INCH OR MORE (percent) | | LESS THAN 1/8 INCH (percent) | |
	RE-GRESSED MEAN	80% CONF. LIMITS	RE-GRESSED MEAN	80% CONF. LIMITS	RE-GRESSED MEAN	80% CONF. LIMITS	RE-GRESSED MEAN	80% CONF. LIMITS	RE-GRESSED MEAN	80% CONF. LIMITS	RE-GRESSED MEAN	80% CONF. LIMITS	RE-GRESSED MEAN	80% CONF. LIMITS
		5.4		2.95		25.7		75.2		77.1		0.9		2.2
995	5.6	5.8	3.02	3.09	26.0	26.3	77.5	79.8	77.9	78.7	1.1	1.4	2.7	3.2
		4.0		2.77		25.0		69.0		80.1		0.6		0.8
996	4.2	4.4	2.83	2.89	25.2	25.4	71.0	72.8	80.9	81.7	0.7	1.0	1.1	1.4
		4.5		2.86		24.6		65.5		73.3		1.0		1.5
997	4.7	4.9	2.94	3.02	24.9	25.2	68.0	70.3	74.1	74.9	1.2	1.4	1.9	2.4
		3.7		2.73		24.9		69.2		75.5		0.9		1.2
998	4.0	4.3	2.84	2.95	25.3	25.7	72.4	75.6	76.6	77.7	1.0	1.2	1.5	1.9
		3.9		2.47		25.0		67.6		82.3		0.6		0.7
999	4.2	4.5	2.56	2.65	25.4	25.8	70.3	73.0	83.0	83.7	0.8	1.0	1.1	1.4

*If the confidence limits for two regressed means overlap, the two means are not significantly different at the 5% level.

The range of the confidence limits represents the amount of difference in the performance of two stocks that may be due to chance. If the confidence limits for two regressed means overlap, the two means are not significantly different at the 5-percent level of probability. If the confidence limits for two regressed means do not overlap, the odds are at least 19 in 20 that a real difference exists in the performance of the two stocks.

The use of the above data as a means of evaluating different stocks and traits can be illustrated as follows:

For the trait "Body Weight," the confidence limits of Stock 995 (5.4 to 5.8 lbs.) do not overlap the confidence limits of any of the other stocks. Therefore, Stock 995 has a significantly higher body weight than the others. However, the confidence limits of Stock 996 (4.0 to 4.4 lbs.) overlap the confidence limits of Stocks 998 (3.7 to 4.3 lbs.) and Stock 999 (3.9 to 4.5 lbs.). The body weights of these three stocks are, therefore, not significantly different.

Using the trait "Feed per Pound of Eggs Produced" as another example, the confidence limits of Stock 995 (2.95 to 3.09 lbs.), Stock 997 (2.86 to 3.02 lbs.), and Stock 998 (2.73 to 2.95 lbs.) all overlap each other. Thus there is no significant difference in the feed conversion of these three stocks. When comparing the feed conversion of Stock 999 (2.56 lbs.) with that of the other stocks, we see that the range of its confidence limits is from 2.47 to 2.65 lbs. Since this range does not overlap the confidence limits of the other four stocks, Stock 999 has a significitantly lower feed conversion than the other stocks listed.

Another example can be shown by using the trait "Albumen Quality." The confidence limits of Stock 995 (77.1 to 78.7) overlap the confidence limits of Stock 998 (75.5 to 77.7). Therefore, there is no significant difference in the albumen quality of these two stocks, even though the regressed mean of Stock 995 is 77.9 Haugh Units and Stock 998 is 76.6 Haugh Units. When Stock 995 is compared with Stocks 996 and 999, we see that the confidence limits of these two stocks do not overlap those of Stock 995. Thus, these two stocks have a significicntly higher albumen quality (80.9 and 83.0 Haugh Units, respectively) than the 77.9 Haugh Units of Stock 995. In comparing Stock 995 with Stock 997, the confidence limits do not overlap. In this case, the albumen quality of Stock 997, expressed as a regressed mean of 74.1 Haugh Units is significantly lower than the regressed mean of Stock 995.

The range of the confidence limits will not necessarily be the same for two different stocks that have the same regressed mean. The number of locations in which a stock is entered, the number of replicate pens per location, the number of years entered, and the accuracy involved in adjusting for location and year effects all have a bearing on the range of the confidence limits for each individual regressed mean.

The "Income Over Feed and Chick Cost" figures reported in table 1 represent the sales value of the eggs produced and of the hens at the end of the test minus the cost of the chicks and the feed used during the growing and laying periods. These figures may be useful in comparing the overall performance of stocks, but they should not be considered as predictions of "profit" to be obtained under commercial operations. The "income" figures should be reduced by other costs, such as labor, building and equipment depreciation, vaccination, litter, interest, taxes, and insurance, to approximate profits that might be expected under commerical conditions. Surveys conducted among commerical producers indicate that such other costs may range from $1 to $2 per pullet housed.

Although the average chick price is reported for each stock, this value cannot be appropriately used to convert the "Income Over Feed and Chick Cost" figure to an income over feed cost figure. The average chick price shown is a simple unadjusted average of the prices reported by the entrant for his entries in the various tests and is not directly comparable to chick cost included in "Income Over Feed and Chick Cost."

Stocks Should be Compared for all Traits

All traits should be considered when using this report to evaluate the overall performance of the various stocks. The values reported for "Income Over Feed and Chick Cost" represent a composite of several traits, combined as determined by the economic conditions of the areas in which the tests are located. The conditions under which the stock is expected to perform in commercial production may differ from those prevailing at the tests, and such differences should be taken into consideration. For example, a poultryman whose local market pays unusually good premiums for large and extra large eggs should place more emphasis on egg size in his evaluation of stock than poultrymen located in areas where such premiums are not available. The local market preference for brown or white shells should also be taken into account. Traits related to interior egg quality that affect the grade are of greatest importance in areas where prices are based on quality standards.

Each person should study his local needs and conditions and then place appropriate emphasis on the performance traits that are of greatest importance to his situation. A productive and profitable stock for one poultryman under one set of conditions may not fit the needs of another poultryman under a different set of conditions.

Definitions of Terms Used and Abbreviations

Stock: A term used to identify a specific breeding combination of chickens. These breeding combinations may include pure strains, strain crosses, breed crosses, incrossbreds, or combinations thereof. Kinds of stock and breeding methods are---

BA	Black Australorp	RIW	Rhode Island White	BX	Crossbred
BPR	Barred Plymouth Rock	Syn.	Synthetic	IN	Incross
CG	California Gray	WL	White Leghorn	INX	Incrossbred
NH	New Hampshire	WPR	White Plymouth Rock	PS	Pure Strain
RIR	Rhode Island Red			SX	Strain Cross

Tests: Central Canada (C. C.)   New Jersey (N. J.)
Florida (Fla.)   North Carolina (N. C.)
Minnesota (Minn.)   Pennsylvania (Pa.)
Missouri Cage (Mo.-C.)   Tennessee (Tenn.)
Missouri Floor (Mo.-F.)   Texas (Texas)
New Hampshire (N. H.)

Test Year: A period beginning during the first year stated in a double-year designation and ending approximately 500 days later. See management summary shown in table 7.

Definition of Traits

Growing mortality	Percentage of birds that died on or before the time they were 150 days old or subsequent age at housing.
Laying mortality	Percentage of birds that died after they were 150 days old or subsequent age at housing.
Age at 50 percent production	Days of age computed from the first day of the first 2 consecutive days of 50 percent production for living birds in the entry at that time.
Hen-housed egg production	Number of eggs laid per pullet housed computed from time of housing to the end of the test.
Hen-day egg production (to end of test)	Percent hen-day production from the time birds reached 50 percent production to end of test.
Hen-day egg production (last 30 to 60 days)	Percent hen-day production during the last 30 to 60 days of the test. Length of time involved varies according to the record keeping system of each individual test.
Feed per pound of eggs	Pounds of feed per pound of eggs produced, computed from bulk weighing of the eggs at least 1 day every 2 weeks or 2 days a month at equal intervals during the laying period of the test.
Egg weight	The weight of a dozen eggs computed from bulk weighing of the eggs at least 1 day every 2 weeks or 2 days a month during the laying period of the test.
Large and extra large eggs	Percentage of large and extra large eggs as determined by egg-size distribution computed from all eggs laid 1 day each week.
Albumen quality	Haugh units, computed from egg weight and albumen height of broken-out egg measured on 1 day's eggs per quarter, at equal intervals. The greater the Haugh units the higher the albumen quality.
Large blood spots	Percentage of eggs with one or more large blood spots (1/8 inch or more in diameter), computed from at least 3 days' eggs per quarter, broken-out basis.
Small blood spots	Percentage of eggs with one or more small blood spots (less than 1/8 inch in diameter), computed from at least 3 days' eggs per quarter, broken-out basis.
Large meat spots	Percentage of eggs with one or more colored large meat spots (1/8 inch or more in diameter), computed from at least 3 days' eggs per quarter, broken-out basis.
Small meat spots	Percentage of eggs with one or more colored small meat spots (less than 1/8 inch in diameter), computed from at least 3 days' egg per quarter, broken-out basis.
Specific gravity score	Eggs are given the specific gravity score that corresponds with the specific gravity of the solution in which they will float. Eggs that do not float in 1.100 solution are given a nine score. The specific gravity of an egg is closely correlated with shell thickness; therefore, the higher the specific gravity score, the thicker the shell. Tabulation of specific gravity solutions and the corresponding specific gravity scores follow:

Solution	Score	Solution	Score
1.068	0	1.088	5
1.072	1	1.092	6
1.076	2	1.096	7
1.080	3	1.100	8
1.084	4		

Body weight	Average weight of birds alive at end of test.
Income over feed and chick cost	Income over feed and chick cost per pullet housed, with chick cost in 1,000 lots at hatch date adjusted for mortality (accidental deaths, sexing errors, and missing chicks not included).

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Central Canada Random Sample Egg Production Test
W. K. Barr, Poultry Production Section, Canada Department of Agriculture, Ottawa, Ontario, Canada

Florida National Egg Laying Test
R. B. Christmas, Chipley, Fla. 32428

Minnesota Random Sample Egg Production Test
Robert E. Moehrle, Department of Agriculture, Division of Poultry Industries, 430 State Office Building,
St. Paul, Minn. 55101

Missouri Random Sample Egg Production Test (Cage)
Charles W. McElyea, P. O. Box 530, Mountain Grove, Mo. 65711

Missouri Random Sample Egg Production Test (Floor)
Charles W. McElyea, P. O. Box 530, Mountain Grove, Mo. 65711

New Hampshire Multiple Unit Egg Production Test
W. C. Skoglund, Department of Poultry Science, University of New Hampshire, Durham, N. H. 03824

New Jersey Random Sample Egg Laying Test
John Dowling, Jr., Rutgers University, New Brunswick, N. J. 08903

North Carolina Random Sample Egg Laying Test, Salisbury
G. A. Martin, Poultry Extension Department, North Carolina State Universtiy, Raleigh, N. C. 27607

Pennsylvania Random Sample Laying Test
Paul J. Turek, Pennsylvania Furnace, Pa. 16865

Tennessee Random Sample Laying Test
H. V. Shirley, Jr., Poultry Department, University of Tennessee, Knoxville, Tenn. 37916

Copies of the final report for any of the Random Sample Egg Production Tests listed above can be
obtained by writing to the test supervisor.

Table 1.—Two-year combined summary: Regressed means and 80% confidence limits for traits by stocks entered

STOCK CODE	BREEDER'S NAME AND ADDRESS	BREEDING	STRAIN OR TRADENAME	NO. PENS	NO. LOCATIONS	AVG. CHICK PRICE (Cents)	GROWING RE-GRESSED MEAN	GROWING 80% CONF. LIMITS	LAYING RE-GRESSED MEAN	LAYING 80% CONF. LIMITS	AGE AT 50% PRODUCTION RE-GRESSED MEAN	AGE 80% CONF. LIMITS	HEN HOUSED RE-GRESSED MEAN	HEN HOUSED 80% CONF. LIMITS	HEN-DAY (END) RE-GRESSED MEAN	HEN-DAY (END) 80% CONF. LIMITS	HEN-DAY (LAST 30-60) RE-GRESSED MEAN	HEN-DAY (LAST 30-60) 80% CONF. LIMITS
577	Animal Research Institute Ottawa, Ontario, Canada	WL PS	Kentville, R. B. C.-	15	2	30.2	3.5	3.2 / 3.8	14.9	12.4 / 17.7	178	174 / 182	195	186 / 204	63.3	61.4 / 65.2	55.3	53.0 / 57.5
10	Anthony, George M. & Sons Strausstown, Pa. 19559	WL SX	Anthony------	62	19	32.6	3.3	2.9 / 3.7	14.6	12.4 / 17.0	179	175 / 181	210	204 / 216	67.6	66.2 / 69.0	59.0	57.2 / 60.8
307	Babcock Poultry Farm, Inc. Ithaca, N.Y. 14851	WL SX	Babcock B-300 ---	63	22	33.8	3.9	3.5 / 4.4	17.4	15.0 / 20.0	165	162 / 168	220	214 / 226	72.6	71.2 / 74.0	64.1	62.3 / 65.9
405	Babcock Poultry Farm, Inc. Ithaca, N.Y. 14851	WL SX	Babcock B-305 ---	100	29	32.1	3.8	3.3 / 4.2	17.9	15.5 / 20.4	167	164 / 170	217	211 / 223	71.9	70.6 / 73.2	62.3	60.6 / 64.0
377	Babcock Poultry Farm, Inc. Ithaca, N.Y. 14851	RIRxBPR BX	Babcock B-390 ---	24	7	32.7	2.5	3.1 / 3.6	9.9	7.8 / 12.1	173	170 / 176	216	209 / 223	66.5	64.9 / 68.1	58.4	56.2 / 60.6
422	Burling Hatchery Oxford, Pa. 19363	WL SX	Burling Leghorn--	4	2	38.0	3.4	3.2 / 3.7	19.0	16.3 / 21.9	181	176 / 186	187	178 / 196	64.4	62.3 / 66.5	59.4	57.1 / 61.7
761	Burling Hatchery Oxford, Pa. 19363	RIRxWPR BX	Golden Tri-Cross-	9	2	35.0	3.2	2.9 / 3.4	10.6	8.4 / 12.9	170	165 / 175	210	201 / 219	64.1	62.2 / 66.0	57.2	54.9 / 59.5
302	Canada Dept. of Agriculture Ottawa, Ontario, Canada	WL SX	P. D. 58 --------	16	2	25.0	3.3	3.0 / 3.6	13.0	10.6 / 15.6	172	167 / 177	222	213 / 231	71.2	69.3 / 73.1	61.5	59.3 / 63.7
377	Carey Farms Marion, Ohio 43302	WL IN	Carey's New Nick-	24	7	31.4	3.3	3.0 / 3.6	16.8	14.2 / 19.6	182	176 / 186	209	201 / 217	70.1	68.5 / 71.7	59.7	57.6 / 61.8
3	Carey Farms Marion, Ohio 43302	WL INX	Carey Nick------	4	2	32.0	3.4	3.2 / 3.6	14.6	12.2 / 17.2	179	174 / 184	210	201 / 219	69.0	66.9 / 71.1	56.7	54.5 / 58.9
31	Cashman Leghorn Farm Webster, Ky. 40176	WL IN	Cashman Hi-Cash-	47	12	28.6	4.6	3.7 / 4.6	16.3	13.0 / 19.0	181	176 / 184	201	193 / 209	67.8	66.3 / 69.3	59.2	57.2 / 61.2
135	Colonial Poultry Farms, Inc. Pleasant Hill, Mo. 64080	WL INX	True-Line 142----	16	4	25.5	3.3	3.1 / 3.6	17.2	15.1 / 22.8	169	164 / 172	198	189 / 207	66.5	64.6 / 68.4	56.4	54.2 / 58.6
240	Colonial Poultry Farms, Inc. Pleasant Hill, Mo. 64080	WL IN	True-Line 365 B--	42	7	26.1	3.6	3.2 / 4.0	16.7	14.1 / 19.4	170	166 / 174	204	196 / 212	67.0	65.4 / 68.6	58.4	56.3 / 60.5

Table — regressed means and 80% confidence limits by stock code.

STOCK CODE	FEED PER POUND OF EGGS PRODUCED (pounds) RE-GRESSED MEAN	80% CONF. LIMITS	EGG WEIGHT (oz./doz.) RE-GRESSED MEAN	80% CONF. LIMITS	LARGE AND EXTRA-LARGE EGGS (percent) RE-GRESSED MEAN	80% CONF. LIMITS	ALBUMEN QUALITY (Haugh units) RE-GRESSED MEAN	80% CONF. LIMITS	BLOOD SPOTS 1/8 INCH OR MORE (percent) RE-GRESSED MEAN	80% CONF. LIMITS	BLOOD SPOTS LESS THAN 1/8 INCH (percent) RE-GRESSED MEAN	80% CONF. LIMITS	MEAT SPOTS 1/8 INCH OR MORE (percent) RE-GRESSED MEAN	80% CONF. LIMITS	MEAT SPOTS LESS THAN 1/8 INCH (percent) RE-GRESSED MEAN	80% CONF. LIMITS	SPECIFIC GRAVITY SCORE RE-GRESSED MEAN	80% CONF. LIMITS	BODY WEIGHT (pounds) RE-GRESSED MEAN	80% CONF. LIMITS	INCOME OVER FEED AND CHICK COST (dollars) RE-GRESSED MEAN	80% CONF. LIMITS
577	2.98	2.88 / 3.08	25.1	24.8 / 25.4	69.3	66.5 / 72.1	77.6	76.6 / 78.5	1.3	0.9 / 1.7	1.7	1.1 / 2.3	0.2	0.1 / 0.4	0.4	0.2 / 0.9	3.98	3.83 / 4.13	4.5	4.2 / 4.8	2.37	2.14 / 2.60
19	2.74	2.67 / 2.81	25.7	25.4 / 26.0	77.1	75.1 / 79.1	81.2	80.5 / 81.9	0.8	0.6 / 1.0	1.2	0.9 / 1.5	0.1	0.1 / 0.1	0.3	0.2 / 0.4	3.45	3.36 / 3.54	4.4	4.2 / 4.6	2.85	2.66 / 3.04
107	2.58	2.51 / 2.65	25.5	25.3 / 25.9	76.7	74.7 / 78.7	76.3	76.1 / 77.5	1.1	0.9 / 1.4	1.4	1.1 / 1.8	0.1	0.1 / 0.2	0.6	0.4 / 0.8	3.90	3.81 / 3.99	4.3	4.1 / 4.5	3.08	2.88 / 3.28
405	2.57	2.51 / 2.63	25.9	25.6 / 26.2	78.4	76.5 / 80.3	75.4	74.8 / 76.0	0.7	0.6 / 0.9	1.1	0.8 / 1.3	0.1	0.1 / 0.1	0.4	0.3 / 0.5	3.90	3.83 / 3.97	4.2	4.0 / 4.4	3.03	2.84 / 3.22
377	2.87	2.79 / 2.95	26.6	26.3 / 26.9	83.0	81.5 / 86.3	77.3	76.5 / 78.1	1.0	0.7 / 1.3	2.8	2.2 / 3.5	2.9	2.4 / 3.5	13.7	12.4 / 15.0	3.34	3.23 / 3.45	5.6	5.4 / 5.8	2.76	2.54 / 2.98
422	2.91	2.80 / 3.02	25.3	24.9 / 25.7	70.1	66.9 / 73.3	79.8	78.5 / 81.1	1.1	0.7 / 1.5	1.2	0.8 / 1.7	0.5	0.2 / 1.0	0.2	0.1 / 0.7	4.14	3.96 / 4.32	4.1	3.8 / 4.4	2.44	2.20 / 2.68
161	2.91	2.81 / 3.01	26.4	26.0 / 26.8	82.0	79.1 / 84.9	79.2	79.1 / 80.3	1.1	0.9 / 1.5	2.4	1.7 / 3.1	2.0	1.3 / 2.8	14.6	12.4 / 16.9	3.38	3.22 / 3.54	5.7	5.5 / 5.9	2.58	2.35 / 2.81
982	2.60	2.50 / 2.70	25.1	24.7 / 25.5	69.9	66.9 / 72.7	82.6	81.5 / 83.6	0.8	0.5 / 1.2	1.3	0.9 / 1.8	0.2	0.1 / 0.5	0.9	0.4 / 1.5	4.60	4.45 / 4.75	4.2	4.0 / 4.4	3.07	2.84 / 3.30
372	2.81	2.73 / 2.89	25.7	25.4 / 26.0	75.8	72.4 / 78.2	77.9	77.0 / 78.8	0.7	0.5 / 1.0	1.0	0.7 / 1.5	0.2	0.1 / 0.3	0.9	0.6 / 1.3	4.20	4.09 / 4.31	4.7	4.5 / 4.9	2.79	2.58 / 3.00
39	2.74	2.62 / 2.86	25.3	24.9 / 25.7	76.8	73.5 / 80.1	77.1	75.7 / 78.5	0.4	0.2 / 0.6	0.4	0.2 / 0.7	0.1	0.1 / 0.3	0.5	0.1 / 1.1	4.12	3.93 / 4.31	4.5	4.2 / 4.8	2.78	2.55 / 3.01
31	2.92	2.84 / 3.00	25.5	25.2 / 25.8	75.7	73.5 / 77.9	77.8	77.1 / 78.5	1.2	0.9 / 1.5	1.8	1.3 / 2.3	0.1	0.1 / 0.1	0.5	0.3 / 0.8	4.25	4.15 / 4.35	5.0	4.7 / 5.3	2.63	2.41 / 2.85
330	2.81	2.71 / 2.91	25.5	25.1 / 25.9	72.6	69.8 / 75.4	78.7	77.7 / 79.7	0.7	0.4 / 1.0	1.3	0.9 / 1.9	0.1	0.1 / 0.2	0.7	0.4 / 1.2	3.08	2.94 / 3.22	4.8	4.6 / 5.0	2.54	2.41 / 2.37
289	2.71	2.63 / 2.79	25.4	25.1 / 25.7	74.1	71.8 / 76.4	78.0	77.2 / 78.8	2.0	1.5 / 2.6	1.5	1.1 / 2.0	0.1	0.1 / 0.2	0.4	0.2 / 0.6	4.07	3.96 / 4.18	4.2	4.0 / 4.4	2.82	2.51 / 3.03

*If the confidence limits for two regressed means overlap, the two means are not significantly different at the 5% level.

Table 1.—Two-year combined summary: Regressed means and 80% confidence limits for traits by stocks entered *(Continued)*

STOCK CODE	BREEDER'S NAME AND ADDRESS	BREEDING	STRAIN OR TRADENAME	NO. PENS	NO. LOCATIONS	AVG. CHICK PRICE (Cents)	MORTALITY GROWING (percent) RE-GRESSED MEAN	80% CONF. LIMITS	LAYING (percent) RE-GRESSED MEAN	80% CONF. LIMITS	AGE AT 50% PRODUCTION (days) RE-GRESSED MEAN	80% CONF. LIMITS	HEN HOUSED (number) RE-GRESSED MEAN	80% CONF. LIMITS	EGG PRODUCTION HEN-DAY (TO END OF TEST) (percent) RE-GRESSED MEAN	80% CONF. LIMITS	HEN-DAY (LAST 30-60 DAYS) (percent) RE-GRESSED MEAN	80% CONF. LIMITS
199	Davis, Joe K., Hatchery Earl, N. C. 28038	RIR SX	Davis Red -------	47	11	32.7	2.9	2.5 3.3	8.8	6.9 10.9	193	179 187	209	202 216	64.6	63.2 66.0	54.8	52.8 56.9
504	Fisher Poultry Farm, Ltd. Ayton, Ontario, Canada	WL SX	Fisher 105 -------	47	12	33.9	3.6	3.2 4.0	19.5	16.8 22.4	169	165 173	204	167 211	68.1	66.6 69.6	59.1	57.2 61.0
66	Garber Poultry Br. Farm Modesto, Calif. 95351	WL SX	Garber G 200-----	60	15	29.4	3.7	3.3 4.1	15.7	13.3 18.2	174	171 177	207	200 214	67.9	66.6 69.3	58.9	57.1 60.7
65	Garber Poultry Br. Farm Modesto, Calif. 95351	CGxWL BX	Garber Gx291-----	51	15	32.7	3.2	2.8 3.6	15.4	13.1 14.0	166	163 169	212	205 219	69.3	66.8 69.8	57.5	55.6 59.4
225	Harco Farms South Easton, Mass. 02375	RIRxBPR BX	Harco Sex Link---	12	4	35.0	3.1	2.8 3.7	13.9	11.4 16.6	173	169 177	208	200 216	66.7	64.8 68.6	****	**** ****
96	Hardy, C. Nelson & Sons Essex, Mass. 01929	RIRxBPR BX	Deluxe Sex Link --	8	2	32.0	3.2	3.0 3.5	16.0	13.4 18.8	177	172 182	190	180 200	60.9	58.0 62.9	****	**** ****
378	Hubbard Farms, Inc. Walpole, N.H. 03608	Syn. x NH BX	Golden Comet ----	46	10	32.3	2.6	2.7 3.0	13.5	11.3 16.0	170	167 173	207	200 214	64.6	63.2 66.0	53.6	51.6 55.6
418	Hubbard Farms, Inc. Walpole, N.H. 03608	WL SX	Hubbard 101------	12	5	30.6	3.3	3.0 3.6	16.7	14.0 19.5	177	173 181	200	191 209	66.8	64.0 68.7	57.9	55.7 60.1
96	Hy-Line Poultry Farms Des Moines, Iowa 50309	--- INX	Hy-Line 934------	41	14	36.0	3.2	2.9 3.5	12.6	11.4 15.1	176	172 180	210	202 218	67.1	65.5 68.7	59.3	57.2 61.4
423	Hy-Line Poultry Farms Des Moines, Iowa 50309	--- INX	Hy-Line 935------	7	1	36.0	3.3	3.1 3.5	9.5	7.5 11.6	172	167 177	224	215 233	68.5	66.4 70.6	59.1	56.9 61.4
356	Ideal Plty. Br. Farm, Inc. Cameron, Texas 76520	Syn. xWL BX	Ideal 236--------	46	22	28.9	3.4	3.0 3.8	18.5	16.1 21.1	171	169 174	207	201 213	68.7	67.4 70.0	62.3	60.6 64.0
412	Ideal Plty. Br. Farm, Inc. Cameron, Texas 76520	Syn. xWL SX	Ideal 345--------	23	7	27.0	3.0	3.5 4.3	15.1	12.6 17.6	178	176 191	203	196 211	67.0	65.4 68.6	59.1	57.0 61.7
152	Indiana Farm Bureau Coop. Indianapolis, Ind. 46204	WL SX	Princess 55 ------	41	8	32.6	3.7	3.3 4.1	14.0	12.4 17.6	179	175 183	205	197 213	66.4	64.8 68.0	57.8	55.9 59.8

**** Stock not entered in test which reported this trait.

STOCK CODE	FEED PER POUND OF EGGS PRODUCED (pounds)		EGG WEIGHT (oz./doz.)		LARGE AND EXTRA LARGE EGGS (percent)		ALBUMEN QUALITY (Haugh units)		BLOOD SPOTS 1/8 INCH OR MORE (percent)		BLOOD SPOTS LESS THAN 1/8 INCH (percent)		MEAT SPOTS 1/8 INCH OR MORE (percent)		MEAT SPOTS LESS THAN 1/8 INCH (percent)		SPECIFIC GRAVITY SCORE		BODY WEIGHT (pounds)		INCOME OVER FEED AND CHICK COST (dollars)	
	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS
399	3.04	2.97 3.11	25.7	25.4 26.0	76.7	74.5 78.9	79.9	78.1 79.7	0.9	0.7 1.2	2.1	1.7 2.7	6.6	5.9 7.4	15.6	14.4 16.0	3.23	3.13 3.33	5.5	5.3 5.7	2.60	2.39 2.91
604	2.65	2.57 2.73	25.5	25.2 25.8	73.8	71.5 76.1	82.7	81.9 83.5	0.5	0.4 0.9	1.1	0.8 1.5	0.1	0.1 0.1	0.5	0.3 0.8	4.44	4.34 4.54	4.1	3.9 4.3	2.78	2.58 2.98
66	2.76	2.69 2.83	25.4	25.1 25.7	74.2	72.1 76.3	81.8	81.1 82.5	0.4	0.3 0.6	0.8	0.6 1.1	0.1	0.1 0.1	0.4	0.2 0.6	4.37	4.28 4.46	4.5	4.3 4.7	2.78	2.58 2.98
65	2.79	2.72 2.86	25.2	25.0 25.4	71.8	69.7 73.9	76.6	75.9 77.3	0.6	0.4 0.8	0.6	0.4 0.9	0.1	0.1 0.1	0.4	0.3 0.6	3.75	3.66 3.94	5.0	4.9 5.2	2.78	2.59 2.97
225	2.90	2.80 3.00	27.3	26.9 27.7	90.4	87.7 93.1	78.7	77.7 79.7	1.2	0.9 1.7	2.5	1.9 3.2	3.0	2.3 3.9	14.5	12.7 16.3	3.15	3.01 3.29	6.0	5.8 6.2	2.81	2.58 3.04
86	3.15	3.05 3.25	26.7	26.4 27.0	84.6	81.6 87.6	79.6	78.4 80.8	0.9	0.6 1.3	3.3	2.6 4.2	4.2	3.1 5.5	17.2	14.7 19.9	3.90	3.73 4.07	5.9	5.6 6.2	2.26	2.02 2.50
378	2.72	2.64 2.80	27.1	26.8 27.4	84.8	82.7 86.9	79.4	78.7 80.1	1.1	0.8 1.5	2.7	2.2 3.3	5.7	5.0 6.4	18.8	17.6 20.1	3.17	3.07 3.27	5.1	4.9 5.3	2.80	2.60 3.00
418	2.80	2.70 2.90	25.6	25.2 26.0	75.0	73.1 78.7	80.0	79.0 81.0	0.4	0.2 0.7	1.6	1.2 2.2	0.1	0.1 0.2	0.5	0.3 0.9	4.07	3.93 4.21	4.3	4.0 4.6	2.65	2.42 2.88
96	2.63	2.54 2.72	26.3	26.0 26.6	80.5	78.1 82.9	73.5	72.7 74.3	0.9	0.6 1.2	1.0	0.7 1.4	0.1	0.1 0.1	0.4	0.2 0.6	4.26	4.16 4.36	4.1	3.9 4.3	2.91	2.70 3.12
423	2.72	2.60 2.84	26.1	25.6 26.6	77.0	73.6 80.4	76.1	74.8 77.4	0.5	0.3 0.8	0.9	0.5 1.3	0.1	0.1 0.5	0.4	0.1 1.0	3.65	3.46 3.84	4.5	4.2 4.8	3.06	2.82 3.30
356	2.68	2.61 2.75	26.0	25.7 26.3	79.1	77.1 81.1	76.7	76.1 77.3	0.9	0.6 1.1	1.2	1.0 1.6	0.1	0.1 0.1	0.5	0.3 0.7	4.05	3.97 4.13	4.6	4.4 4.9	2.85	2.66 3.04
412	2.74	2.66 2.82	25.8	25.5 26.1	77.9	75.3 80.5	77.8	76.9 78.7	1.3	0.9 1.7	1.3	0.9 1.8	0.2	0.1 0.4	0.5	0.3 0.8	3.82	3.70 3.94	4.3	4.0 4.6	2.88	2.65 3.11
152	2.73	2.65 2.81	25.9	25.5 26.1	79.0	76.7 81.3	83.5	82.7 84.3	0.6	0.4 0.9	1.2	0.9 1.7	0.1	0.1 0.1	0.5	0.3 0.8	3.78	3.67 3.89	4.3	4.1 4.5	2.81	2.60 3.02

*If the confidence limits for two regressed means overlap, the two means are not significantly different at the 5% level.

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Table 1.—Two-year combined summary: Regressed means and 80% confidence limits for traits by stocks entered *(Continued)*

STOCK CODE	BREEDER'S NAME AND ADDRESS	STRAIN OR TRADENAME	BREEDING	NO. PENS	NO. LOCATIONS	AVG. CHICK PRICE (Cents)	MORTALITY GROWING (percent) RE-GRESSED MEAN	GROWING 80% CONF. LIMITS	LAYING (percent) RE-GRESSED MEAN	LAYING 80% CONF. LIMITS	AGE AT 50% PRODUCTION (days) RE-GRESSED MEAN	AGE 80% CONF. LIMITS	HEN HOUSED (number) RE-GRESSED MEAN	HEN HOUSED 80% CONF. LIMITS	EGG PRODUCTION HEN-DAY (TO END OF TEST) (percent) RE-GRESSED MEAN	HEN-DAY END 80% CONF. LIMITS	HEN-DAY (LAST 30-60 DAYS) (percent) RE-GRESSED MEAN	HEN-DAY LAST 80% CONF. LIMITS
334	Indiana Farm Bureau Coop. Indianapolis, Ind. 46204	Duchess 60 ------	WL SX	30	4	32.0	3.2	3.0 / 3.5	18.6	15.0 / 21.5	176	173 / 179	202	194 / 210	68.9	67.2 / 70.6	58.6	56.4 / 60.8
110	Kimber Farms, Inc. Fremont, Calif. 94536	Kimber K 137 -----	WL SX	93	20	33.2	3.7	3.3 / 4.1	16.5	14.2 / 19.0	172	169 / 175	207	201 / 213	68.4	67.0 / 69.8	60.7	58.9 / 62.5
419	Kimber Farms, Inc. Fremont, Calif. 94536	Kimber K 163 -----	WL SX	4	2	32.0	3.4	3.2 / 3.6	16.7	14.2 / 19.4	181	177 / 195	190	189 / 200	66.5	64.4 / 68.6	59.8	57.6 / 62.0
429	Kimber Farms, Inc. Fremont, Calif. 94536	KimBrown -------	--- SX	4	2	32.3	3.1	2.9 / 3.3	14.9	12.5 / 17.5	182	177 / 187	202	193 / 211	66.5	64.4 / 68.6	****	****
427	Kvutzat Yavne Hatchery Evtach, Israel	Yavne 301 -------	WL SX	4	2	29.0	3.0	2.8 / 3.2	11.6	9.4 / 13.9	180	176 / 184	222	212 / 232	69.3	67.1 / 71.5	****	****
117	Lawton, A. C. & Sons Foxboro, Mass. 02035	Buff Sex Link-----	RIRxWPR BX	28	3	32.4	3.3	2.9 / 3.7	10.7	8.6 / 13.0	177	173 / 181	197	189 / 206	61.3	59.7 / 62.9	54.5	52.4 / 56.6
535	Miller Hatcheries, Ltd. Saskatoon, Sask., Canada	Grayline----------	CGxWL BX	9	2	35.0	3.3	3.1 / 3.5	15.2	12.7 / 17.9	182	178 / 186	203	194 / 212	67.9	65.6 / 70.0	****	****
97	N. Cent. Reg. Plty. Br. Lab. Lafayette, Ind. 47907	Reg. Cornell Contr.	WL PS	34	6	27.2	4.2	3.7 / 4.6	23.5	20.5 / 26.6	194	181 / 187	170	163 / 177	63.9	62.3 / 65.5	56.5	54.5 / 58.5
399	N. Cent. Reg. Plty. Br. Lab. Lafayette, Ind. 47907	Kentville-Cornell -	WL SX	44	15	32.0	4.0	3.5 / 4.5	22.5	17.9 / 23.4	181	177 / 185	177	171 / 183	62.1	60.7 / 63.5	53.4	51.6 / 55.2
152	Parks Poultry Farm Altoona, Pa. 16601	Keystone B-1------	WL SX	62	20	33.1	3.5	3.1 / 4.0	14.0	12.7 / 17.3	172	169 / 175	220	213 / 227	71.4	70.1 / 72.7	60.7	58.8 / 62.6
182	Parks Poultry Farm Altoona, Pa. 16601	Sil-Go-Links -----	RIRxWPR BX	9	2	32.0	3.2	2.9 / 3.5	13.0	10.6 / 15.4	174	170 / 178	193	184 / 202	59.9	58.0 / 61.8	53.4	51.2 / 55.6
472	Poultry Breeders Union Lakewood, N.J. 08701	Yaniv V-18-------	WL SX	17	4	32.0	3.5	3.3 / 3.9	17.0	14.3 / 19.9	181	177 / 185	195	187 / 203	65.8	63.9 / 67.7	60.5	58.3 / 62.7
424	Rankins Poultry Farm Rochdale, Mass. 01542	Rankin JR-5-------	WPRxRIR BX	4	2	34.0	3.5	3.3 / 3.7	16.0	15.4 / 20.6	174	170 / 178	197	187 / 207	67.1	65.0 / 69.2	****	****

**** Stock not entered in test which reported this trait.

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STOCK CODE	FEED PER POUND OF EGGS PRODUCED (pounds)		EGG WEIGHT (oz./doz.)		LARGE AND EXTRA LARGE EGGS (percent)		ALBUMEN QUALITY (Haugh units)		BLOOD SPOTS 1/8 INCH OR MORE (percent)		BLOOD SPOTS LESS THAN 1/8 INCH (percent)		MEAT SPOTS 1/8 INCH OR MORE (percent)		MEAT SPOTS LESS THAN 1/8 INCH (percent)		SPECIFIC GRAVITY SCORE		BODY WEIGHT (pounds)		INCOME OVER FEED AND CHICK COST (dollars)	
	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS
234	2.77	2.68 / 2.86	25.3	25.4 / 26.2	77.7	75.2 / 80.2	83.7	82.9 / 84.6	0.8	0.5 / 1.2	1.2	0.8 / 1.7	0.2	0.1 / 0.3	0.4	0.2 / 0.8	3.85	3.73 / 3.97	4.4	4.2 / 4.5	2.68	2.46 / 2.90
110	2.70	2.63 / 2.77	25.2	24.9 / 25.5	71.7	69.7 / 73.7	84.4	83.7 / 85.1	0.9	0.6 / 1.3	1.3	1.0 / 1.6	0.1	0.1 / 0.1	0.7	0.5 / 0.9	4.48	4.40 / 4.56	4.3	4.1 / 4.5	2.78	2.59 / 2.97
419	2.83	2.71 / 2.95	25.9	25.5 / 26.3	77.4	74.1 / 80.7	79.0	77.6 / 80.4	0.4	0.2 / 0.6	2.1	1.5 / 2.7	0.1	0.1 / 0.3	0.5	0.1 / 1.1	4.29	4.10 / 4.48	4.3	4.0 / 4.6	2.54	2.31 / 2.77
428	2.86	2.75 / 2.97	26.4	26.0 / 26.8	81.3	78.0 / 84.6	79.7	78.4 / 81.0	0.7	0.5 / 1.0	2.1	1.6 / 2.8	5.2	3.9 / 6.8	4.9	3.4 / 6.6	3.93	3.64 / 4.02	5.4	5.1 / 5.7	2.80	2.56 / 3.04
427	2.90	2.79 / 3.01	26.0	25.6 / 26.4	82.6	79.4 / 85.8	75.9	74.6 / 77.2	1.6	1.1 / 1.0	3.7	2.9 / 4.5	0.2	0.1 / 0.5	0.5	0.1 / 1.1	4.09	3.91 / 4.27	4.9	4.6 / 5.2	3.05	2.81 / 3.29
117	3.19	3.11 / 3.27	26.6	26.3 / 26.9	81.4	79.1 / 83.7	76.6	75.7 / 80.5	1.7	1.3 / 2.1	3.2	2.6 / 3.9	7.9	6.9 / 9.8	17.6	16.2 / 19.0	3.84	3.73 / 3.95	5.9	5.7 / 6.1	2.24	2.03 / 2.45
505	2.93	2.79 / 3.01	25.5	25.2 / 26.0	74.4	73.3 / 79.5	76.1	74.9 / 77.3	0.9	0.6 / 1.3	1.3	0.9 / 1.9	0.2	0.1 / 0.6	0.5	0.2 / 1.0	3.79	3.63 / 3.95	5.0	4.7 / 5.3	2.59	2.35 / 2.83
37	3.18	3.10 / 3.26	24.6	24.3 / 24.9	66.0	63.6 / 68.4	78.6	77.8 / 79.4	1.0	0.7 / 1.4	1.4	1.0 / 1.9	0.1	0.1 / 0.2	0.7	0.4 / 1.0	4.07	3.97 / 4.17	4.7	4.5 / 4.9	1.80	1.59 / 2.01
490	3.11	3.04 / 3.18	24.8	24.5 / 25.1	67.6	65.5 / 69.7	78.1	77.4 / 78.9	1.1	0.8 / 1.4	1.8	1.4 / 2.2	0.1	0.1 / 0.1	0.7	0.5 / 1.0	4.08	3.99 / 4.17	4.6	4.4 / 4.8	2.01	1.81 / 2.21
352	2.67	2.62 / 2.74	26.0	25.7 / 26.3	80.4	76.4 / 84.4	78.7	78.0 / 79.4	0.6	0.4 / 0.8	1.0	0.7 / 1.3	0.1	0.1 / 0.1	0.5	0.3 / 0.6	3.97	3.86 / 4.06	4.7	4.5 / 4.9	3.02	2.83 / 3.21
382	3.08	2.98 / 3.18	27.1	26.7 / 27.5	89.1	86.3 / 91.9	78.0	77.8 / 90.0	1.3	0.9 / 1.7	2.0	1.5 / 2.7	2.3	1.5 / 3.2	12.7	10.7 / 14.8	3.58	3.42 / 3.74	6.0	5.8 / 6.2	2.29	2.05 / 2.53
420	2.92	2.82 / 3.02	25.5	25.1 / 25.9	74.0	71.3 / 76.7	80.3	79.3 / 81.3	1.2	0.8 / 1.6	1.6	1.2 / 2.2	0.1	0.1 / 0.2	0.4	0.2 / 0.7	4.24	4.11 / 4.37	4.6	4.4 / 4.8	2.49	2.25 / 2.73
426	2.78	2.67 / 2.89	25.5	25.1 / 25.9	71.9	68.6 / 75.2	77.2	75.8 / 78.6	1.1	0.7 / 1.4	1.6	1.1 / 2.2	5.0	3.6 / 6.5	7.3	5.5 / 9.4	3.55	3.36 / 3.74	5.2	4.9 / 5.5	2.54	2.31 / 2.77

*If the confidence limits for two regressed means overlap, the two means are not significantly different at the 5% level.

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Table 1.--Two-year combined summary: Regressed means and 80% confidence limits for traits by stocks entered (Continued)

STOCK CODE	BREEDER'S NAME AND ADDRESS	BREEDING	STRAIN OR TRADENAME	NO. PENS / NO. LOCATIONS	AVG. CHICK PRICE (Cents)	MORTALITY GROWING (percent) RE-GRESSED MEAN	GROWING 80% CONF. LIMITS	LAYING (percent) RE-GRESSED MEAN	LAYING 80% CONF. LIMITS	AGE AT 50% PRODUCTION (days) RE-GRESSED MEAN	AGE 80% CONF. LIMITS	HEN HOUSED (number) RE-GRESSED MEAN	HEN HOUSED 80% CONF. LIMITS	EGG PROD. HEN-DAY TO END OF TEST (percent) RE-GRESSED MEAN	80% CONF. LIMITS	HEN-DAY LAST 30-60 DAYS (percent) RE-GRESSED MEAN	80% CONF. LIMITS
424	Ross Poultry, Ltd. Norwich, England	WL SX	Sterling Apollo ----	12 / 4	33.0	3.5	3.2 / 3.7	16.4	13.9 / 19.4	169	165 / 173	200	200 / 218	68.5	66.5 / 70.5	****	**** / ****
510	St. Augustin Coop. Hatchery St. Augustin, Quebec, Can.	WL SX	Corvette --------	8 / 2	36.0	2.7	2.0 / 3.5	14.1	11.6 / 16.7	175	170 / 180	208	199 / 213	67.7	65.6 / 69.8	****	**** / ****
191	Shaver Poultry Br. Farm Galt, Ontario, Canada	WL SX	Starcross 288 ----	122 / 25	32.7	3.1	2.7 / 3.6	10.9	9.0 / 12.0	174	171 / 177	227	221 / 233	72.7	71.4 / 74.0	62.6	61.0 / 54.2
421	Shaver Poultry Br. Farm Galt, Ontario, Canada	RIR SX	Starcross 585 ----	4 / 2	31.0	3.4	3.1 / 3.6	7.5	5.7 / 9.4	168	164 / 172	216	207 / 225	63.0	61.7 / 66.1	54.6	52.3 / 56.0
491	Tatum Farms Dawsonville, Ga. 30534	WL SX	Tatum T-100 ------	76 / 22	33.1	4.1	3.6 / 4.6	17.4	15.1 / 20.0	167	165 / 169	210	204 / 216	69.8	68.4 / 71.2	60.1	58.4 / 61.8
407	Thornbers Halifax, Yorkshire, Eng.	WL SX	Thornber 808------	43 / 16	39.5	3.1	2.8 / 3.5	11.4	9.2 / 13.7	167	163 / 171	219	212 / 226	69.4	67.9 / 70.5	59.4	57.4 / 51.2
412	Tokai Plty. Farm, Ltd. Retreat, C.P., So. Africa	WLxBA BX	Tokai 102 --------	14 / 8	35.0	3.5	3.1 / 3.8	16.5	13.9 / 19.2	163	160 / 166	212	204 / 220	67.9	66.3 / 67.5	52.7	50.6 / 55.0
305	Warren, J.J., Inc. N. Brookfield, Mass. 01535	RIRxRIW BX	Sex-Sal-Link-F----	16 / 4	34.0	3.4	3.1 / 3.8	9.9	6.9 / 11.0	177	173 / 181	218	209 / 227	67.7	65.9 / 69.5	56.6	54.4 / 58.9
425	Welp's Breeding Farm Bancroft, Iowa 50517	RIR SX	Welp Line 650 ----	4 / 2	35.0	3.0	2.8 / 3.2	9.2	7.3 / 11.4	175	170 / 180	220	211 / 229	67.7	65.6 / 69.0	****	**** / ****
220	Welp's Breeding Farm Bancroft, Iowa 50517	WL SX	Welp Line 937 ----	74 / 22	34.0	3.4	3.0 / 3.9	14.3	12.1 / 16.7	160	153 / 169	204	197 / 211	65.8	64.4 / 67.2	55.6	54.8 / 58.4

**** Stock not entered in test which reported this trait.

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STOCK CODE	FEED PER POUND OF EGGS PRODUCED (pounds)		EGG WEIGHT (oz./doz.)		LARGE AND EXTRA LARGE EGGS (percent)		ALBUMEN QUALITY (Haugh units)		BLOOD SPOTS 1/8 INCH OR MORE (percent)		BLOOD SPOTS LESS THAN 1/8 INCH (percent)		MEAT SPOTS 1/8 INCH OR MORE (percent)		MEAT SPOTS LESS THAN 1/8 INCH (percent)		SPECIFIC GRAVITY SCORE		BODY WEIGHT (pounds)		INCOME OVER FEED AND CHICK COST (dollars)	
	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS	RE-GRESSED MEAN	80%* CONF. LIMITS
424	2.71	2.61 2.81	26.2	25.9 26.5	83.4	80.5 86.3	77.6	76.5 78.7	1.4	1.0 1.9	1.1	0.7 1.6	0.3	0.1 0.5	0.1	0.1 0.2	3.77	3.52 3.92	4.5	4.2 4.8	2.82	2.58 3.06
510	2.72	2.61 2.83	25.7	25.3 26.1	77.3	74.1 80.5	80.3	79.1 81.5	0.7	0.5 1.1	1.3	0.8 1.8	0.3	0.1 0.6	0.7	0.3 1.4	4.07	3.91 4.23	4.5	4.3 4.7	2.81	2.57 3.05
181	2.62	2.56 2.68	26.2	26.0 26.4	82.1	80.1 84.1	79.5	78.8 80.2	0.7	0.6 0.9	1.3	1.1 1.6	0.1	0.1 0.1	0.5	0.3 0.6	4.07	4.00 4.14	4.6	4.4 4.8	3.24	3.05 3.43
421	2.71	2.60 2.82	25.5	25.1 25.9	72.2	69.0 75.4	78.3	77.0 79.6	1.0	0.7 1.4	2.2	1.6 2.9	0.5	0.2 1.0	15.6	13.1 18.3	3.36	3.17 3.55	4.7	4.4 5.0	2.95	2.66 3.12
401	2.66	2.59 2.73	25.3	25.1 25.5	74.3	72.3 76.3	76.5	75.9 77.2	1.3	1.1 1.6	1.4	1.1 1.8	0.1	0.1 0.1	0.5	0.4 0.7	3.96	3.88 4.04	4.2	4.0 4.4	2.99	2.70 3.08
407	2.67	2.59 2.75	24.6	24.3 24.9	64.8	62.4 67.2	76.2	75.3 77.1	0.2	0.1 0.3	0.6	0.4 0.8	0.1	0.1 0.1	0.2	0.1 0.3	3.78	3.68 3.88	4.1	3.9 4.3	2.99	2.69 3.00
410	2.96	2.67 3.05	24.3	24.0 24.6	56.6	54.3 58.9	77.6	74.7 78.5	0.8	0.5 1.1	1.8	1.3 2.3	2.3	1.8 2.9	6.9	5.9 7.9	3.64	3.52 3.76	5.1	4.8 5.4	2.47	2.26 2.58
305	2.81	2.72 2.90	26.8	26.5 27.1	86.4	83.9 88.9	81.0	80.5 82.0	0.7	0.4 1.0	2.6	2.0 3.4	2.6	1.9 3.3	12.3	10.7 13.9	3.44	3.31 3.57	5.7	5.4 6.0	3.03	2.81 3.25
425	2.83	2.71 2.95	25.5	25.0 26.0	75.2	71.9 78.5	77.3	75.9 78.7	0.7	0.5 1.0	1.1	0.7 1.6	7.3	5.7 9.1	15.9	13.3 18.8	3.80	3.61 3.99	4.9	4.6 5.2	3.05	2.92 3.30
290	2.74	2.67 2.81	25.0	24.7 25.3	69.9	67.9 71.9	77.6	77.0 78.2	0.7	0.5 0.9	1.4	1.1 1.7	0.0	0.0 0.1	0.3	0.2 0.4	3.81	3.72 3.90	4.1	3.9 4.3	2.67	2.49 2.86

*If the confidence limits for two regressed means overlap, the two means are not significantly different at the 5% level.

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Statistical Methods

The 2-year combined summary includes performance data on 33 stocks that were entered in both the 1969-70 and 1970-71 tests and on 15 stocks that were entered only in the 1970-71 tests. Birds were tested at 23 locations in 1969-70 and at 21 locations in 1970-71. Table 3 lists the locations. Certain traits were not measured at some of the locations. These are identified with an NR (not reported) in the appropriate columns in table 3.

Replicate data were reported by 18 locations in 1969-70 and by 18 locations in 1970-71. In addition, three locations in 1969-70 and one location in 1970-71 tested the stock in replicate pens, but the number of birds per replicate was too small for a valid analysis. Consequently, the replicate data were combined by entries within each of these locations, and the resulting entry average was used in the computations. This was done to more nearly equalize the variance among pens throughout all tests. The number of pens and the number of stocks tested at each location for the 2 years are given in table 3.

The percentage data for both years for the six traits--growing mortality, laying mortality, large blood spots, small blood spots, large meat spots, and small meat spots--were converted to angles with the arcsin transformation prior to analysis. However, the test-year adjustment factors shown in table 3 and the regressed means and confidence limits shown for these traits in table 1 are given in percent.

The replicate data were analyzed by least-squares procedures to obtain the test-year adjustment factors shown in table 3 and the repeatability estimates and the correlations among pens within tests shown in table 2. The test-year adjustment factors were then used to adjust the simple stock average for test and year effects. The adjusted stock averages (the least-squares stock means) were then regressed toward the overall mean ($\hat{\mu}$) to account for variations in number of tests entered, number of years entered, and number of replicated per test. The formula used to compute the regressed mean is:

$$\text{Regressed Mean} = \hat{\mu} + \frac{r_{2/C}}{1+(k_3-1)x_1+(k_1-k_3)x_2+(k_2-k_3)r_1+[(1/C)-k_1-k_2+k_3]r_2}(\hat{s})$$

where:

$\hat{\mu}$ = the average of the test and year adjusted stock means.

r_1 = repeatability within year.

r_2 = repeatability from year-to-year.

x_1 = the correlation among replicates within year and test.

x_2 = the correlation among pens of the same stock from year-to-year for the same test.

k_1 = an average of the number of pens per test (averaged over years).

k_2 = an average of the number of pens per year (averaged over tests).

k_3 = an average of the number of replicated per test-year subclass.

C = the diagonal inverse element for that stock. The reciprocal of C, i.e., $\frac{1}{C}$, is equal to nk_3 if the assumption is made that the adjustments for test-year effects are made without error; where n is the number of test-year subclasses in which that stock is entered.

s = the test-year adjusted stock average minus the overall mean $\hat{\mu}$.

The correlations used in computing the regression coefficient were obtained from estimates of the variance components for stocks ($\hat{\sigma}_s^2$), the stock-X-test interaction ($\hat{\sigma}_{st}^2$), the stock-X-year interaction ($\hat{\sigma}_{sy}^2$), and the random error ($\hat{\sigma}_e^2$). The variance component estimates were obtained by equating the computed mean squares for these effects to their expectations. The mean square for stocks was adjusted for the test-year subclass by least-squares procedures for the effects of stocks and the test-year subclasses. The three-factor interaction was assumed to be non-existent. Ratios of the variance component estimates that were used to compute the correlations follow:

Correlation Among Replicates	$= x_1 =$	$\dfrac{\hat{\sigma}_s^2 + \hat{\sigma}_{st}^2 + \hat{\sigma}_{sy}^2}{\hat{\sigma}_s^2 + \hat{\sigma}_{st}^2 + \hat{\sigma}_{sy}^2 + \hat{\sigma}_e^2}$
Correlations from Year-to-Year (same test)	$= x_2 =$	$\dfrac{\hat{\sigma}_s^2 + \hat{\sigma}_{st}^2}{\hat{\sigma}_s^2 + \hat{\sigma}_{st}^2 + \hat{\sigma}_{sy}^2 + \hat{\sigma}_e^2}$
Repeatability from Test-to-Test (within year)	$= r_1 =$	$\dfrac{\hat{\sigma}_s^2 + \hat{\sigma}_{sy}^2}{\hat{\sigma}_s^2 + \hat{\sigma}_{st}^2 + \hat{\sigma}_{sy}^2 + \hat{\sigma}_e^2}$
Repeatability from Test-to-Test (between years)	$= r_2 =$	$\dfrac{\hat{\sigma}_s^2}{\hat{\sigma}_s^2 + \hat{\sigma}_{st}^2 + \hat{\sigma}_{sy}^2 + \hat{\sigma}_e^2}$

An approximate standard error (SE) was computed for each regressed mean as follows:

$$SE = b\sqrt{C(\hat{\sigma}_e^2 + k_1\hat{\sigma}_{st}^2 + k_2\hat{\sigma}_{sy}^2)}$$

where b is the regression coefficient given above in the formula for the regressed mean. Confidence limits were then computed for each regressed mean as follows:

Regressed Mean $\pm$ 1.3 SE

The constant 1.3 was selected in order that the probability of the confidence limits overlapping by chance alone between any two means would be about 0.03. This makes the test of significance among regressed means almost comparable to using Duncan's range test at the 0.05 level of probability.

Definitions of Statistical Terms

The following definitions will help the reader interpret the analytical procedures:

Overall mean	The average of the test-year adjusted means for all stocks. This is an estimate of what the overall average would have been had all stocks been entered in all tests in both years.
Range	The range represents the difference between the expected maximum and minimum performance among the 60* stocks, based on the regressed means.
Common stocks	Stocks that are being tested at more than one location.
Test-year adjustment factor.	The amount added to or subtracted from the actual performance of the stocks at a given location in a given year to bring them to the average of all the location-year subclasses that had complete data. These factors were determined on an intrastock basis with a least-squares analysis, and they are given in table 3.
Repeatabiltiy within year	An intraclass correlation that measures the tendency for common stocks to rank the same from test-to-test within year. Theoretically, it can vary from 0.00 to 1.00.
Repeatability between years	A correlation which measures the tendency for common stocks to rank the same from test-to-test from one year to another. The difference between the repeatability within year and repeatability between years indicates the relative importance of the stock-by-year interaction.
Correlation among replicates	This correlation measures the repeatability among replicates of the same stock in the same test and year. The higher the correlation among replicates the less need there is for replication of stocks within test and year.
Correlation from year-to-year within tests	A correlation which measures the tendency for common stock to rank the same from year-to-year when tested at the same location. The difference in the repeatability between years and in the correlation from year-to-year within tests indicates the relative importance of the stock-by-test interaction.
Confidence limits	The confidence limits for each regressed mean are computed so that the probability is about 0.08 that the "true" stock mean lies within the interval. They are presented in this report, however, for the purpose of providing approximate tests of significance for differences among stocks.

*Includes 14 experimental stocks.

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Table 2.--Analytical data for the traits measured
1969-70 and 1970-71

Test	Overall means	Regressed means		Repeatability		Correlations within test	
		Min.	Max.	Within year (r_1)	Year-to-year (r_2)	Among replicates (x_1)	Year-to-year (x_2)
Growing mortality --------- percent-	3.3	2.6	4.2	0.1674	0.0313	0.1674	0.0313
Laying mortality----------- percent-	14.1	7.5	23.5	.2548	.1805	.4518	.3775
Age at 50% production --------- days-	175.0	161	184	.4090	.3826	.4987	.4723
Hen-housed egg production-- number-	207.2	170	241	.3446	.3108	.5172	.4834
Hen-day egg production to end of test ----------------- percent-	66.9	59.9	73.9	.4749	.4183	.5955	.5388
Hen-day egg production last 30 to 60 days -------------- percent-	58.0	52.7	64.2	.2723	.2287	.4679	.4242
Feed per pound of eggs ------ pounds-	2.83	2.52	3.25	.5724	.5172	.7021	.6469
Egg weight ----------- ounces/dozen-	25.7	24.3	27.3	.7255	.6699	.7919	.7363
Large and extra large eggs - percent-	76.2	56.6	90.4	.6930	.6250	.8168	.7488
Albumen quality --------Haugh units-	78.6	73.5	84.4	.7195	.6970	.7574	.7349
Large blood spots---------- percent-	.8	.2	2.0	.1735	.1735	.4103	.4103
Small blood spots ---------- percent-	1.5	.4	3.7	.2036	.2036	.4425	.4425
Large meat spots ---------- percent-	.4	.0	7.9	.7170	.7170	.8266	.8266
Small meat spots ---------- percent-	2.0	.1	19.5	.8339	.8339	.8896	.8896
Specific gravity-------------- score-	3.92	3.08	4.60	.5922	.5787	.6562	.6427
Body weight ---------------- pounds-	4.7	4.1	6.1	.8206	.7847	.8589	.8230
Income over feed and chick cost -------------------- dollars-	2.72	1.80	3.43	.3953	.3057	.5990	.5094

NOTE: The values for these factors are based on the 48 commercially available stocks as well as the 13 experimental stocks that were tested. The individual performance data for the experimental entries were analyzed but not published in this report.

Table 3.--Factors used to adjust for test differences

Test	Pens (number)		Stocks tested (number)		Mortality (percent)			
					Growing period		Laying period	
	1970	1971	1970	1971	1970	1971	1970	1971
Central Canada No. 6 - (2/cage)-----	48	48	12	12	+0.01	+0.07	+0.29	-0.03
Central Canada No. 7 - (2/cage)-----	48	48	12	12	+ .01	+ .07	+ .14	- .01
Florida No. 1 - Floor --------------	48	48	12	12	- .09	+ .55	+ .93	+1.88
Florida No. 2 - (2/cage)------------	48	48	12	12	- .09	+ .55	+ .06	+ .50
Florida No. 3 - (3/cage)------------	--	48	--	12	----	+ .55	----	+ .11
Minnesota No. 1 - Floor------------	14	14	14	14	+ .01	+1.24	+1.20	+4.08
Minnesota No. 4 - (3/cage) ---------	42	42	14	14	+ .01	+1.24	+ .35	+1.62
Missouri Cage - (8/cage) -----------	108	98	18	14	- .95	- .24	- .26	- .56
Missouri Floor --------------------	100	100	25	25	-7.23	- .99	-2.08	-2.66
New Hampshire No. 4 - Floor-------	14	21	14	21	- .16	-3.40	- .04	- .91
New Hampshire No. 7 - (3/cage) ----	42	63	14	21	NR*	-3.40	- .05	- .44
New Jersey -----------------------	11	12	11	12	+ .02	+ .67	+ .90	- .37
North Carolina No. 2 - Slat ---------	40	--	20	--	- .98	----	- .72	----
North Carolina No. 3 - Floor -------	40	40	20	20	+ .01	+ .57	+ .26	- .11
North Carolina No. 4 - (2/cage) -----	80	80	20	20	- .22	+ .04	+ .01	- .08
North Carolina No. 5 - (7/cage) -----	--	40	--	20	----	+ .01	----	-2.18
Pennsylvania No. 1 - Floor ---------	48	48	24	24	+ .91	+ .02	- .23	- .92
Pennsylvania No. 2 - (3/cage)-------	48	48	24	24	+ .91	+ .02	- .08	-1.39
Tennessee No. 1 - (1/cage) ---------	14	--	14	--	+ .72	----	+ .32	----
Tennessee No. 2 - (2/cage) ---------	28	--	14	--	+ .72	----	+ .29	----
Tennessee No. 3 - (1/cage) ---------	14	--	14	--	+ .72	----	+ .20	----
Tennessee No. 4 - (2/cage) ---------	28	--	14	--	+ .72	----	+ .32	----
Tennessee No. 5 - (2/cage) ---------	--	28	--	14	----	+ .09	----	+ .26
Tennessee No. 6 - (2/cage) ---------	--	28	--	14	----	+ .09	----	+ .34
Tennessee No. 7 - (2/cage) ---------	--	28	--	14	----	+ .09	----	+ .59
Tennessee No. 8 - (2/cage) ---------	--	28	--	14	----	+ .09	----	+ .77
Texas No. 2 - (2/cage) -------------	28	--	14	--	-2.84	----	- .99	----
Texas No. 3 - (2/cage) -------------	28	--	14	--	-2.84	----	- .96	----
Texas No. 4 - (2/cage) -------------	28	--	14	--	-2.84	----	- .59	----

* Data for this trait not reported.

Table 3.--Factors used to adjust for test differences--Continued

| Test | Age at 50 percent production (days) | | Egg production | | | | | |
| | | | Hen-housed (number) | | Hen-day (to end of test) (percent) | | Hen-day (last 30-60 days) (percent) | |
	1970	1971	1970	1971	1970	1971	1970	1971
Central Canada No. 6 - (2/cage)----	+ 4.44	- 6.80	- 9.43	+ 5.71	-1.38	-1.29	-0.19	NR*
Central Canada No. 7 - (2/cage)----	- 1.64	- 8.03	- 7.73	+12.47	-1.95	+1.30	- .47	NR*
Florida No. 1 - Floor -------------	+18.92	+15.60	-52.71	-46.13	-1.09	+1.69	+4.43	+ 6.18
Florida No. 2 - (2/cage) ----------	+18.08	+15.40	-36.96	-37.34	+1.49	+2.44	+6.31	+ 5.43
Florida No. 3 - (3/cage) ----------	-----	+15.13	-----	-29.86	----	+3.84	----	+ 6.64
Minnesota No. 1 - Floor ----------	- 7.36	+ 3.78	+28.67	+ 5.66	+6.90	+7.14	-1.12	-11.12
Minnesota No. 4 - (3/cage) --------	-21.79	+ .03	+35.95	-14.28	+8.14	- .93	-6.95	- .47
Missouri Cage - (8/cage) ----------	-13.74	-19.73	+ 7.71	+21.88	-3.24	-2.66	-3.52	- 3.98
Missouri Floor -------------------	-14.03	-12.78	+35.23	+33.32	-1.20	+1.14	-1.08	+ 1.14
New Hampshire No. 4 - Floor------	+ 4.49	- 6.12	-20.30	+11.70	-9.06	-2.09	NR*	NR*
New Hampshire No. 7 - (3/cage) ---	+ 2.85	- 4.37	+ 5.05	+25.50	- .89	+4.59	NR*	NR*
New Jersey ---------------------	+10.65	+ 1.77	-31.34	- 5.46	-2.90	-1.83	-2.59	+ 6.15
North Carolina No. 2 - Slat --------	- 4.88	-----	+13.78	-----	-1.75	----	-1.13	-----
North Carolina No. 3 - Floor ------	- .48	+ 4.35	-18.15	+ 1.49	-6.35	-1.77	-3.58	+ 2.66
North Carolina No. 4 - (2/cage)----	- .42	- 1.93	+ 1.97	+19.23	-1.51	+3.19	- .54	+ 2.62
North Carolina No. 5 - (7/cage)----	-----	- 5.46	-----	+33.60	----	+4.75	----	+ .59
Pennsylvania No. 1 - Floor --------	+ 6.55	+ 5.56	- 7.61	+13.02	-2.23	- .01	NR*	+ 1.81
Pennsylvania No. 2 - (3/cage)------	+ 5.51	+ 1.25	- 3.05	+25.96	+ .89	+3.43	NR*	+ 7.77
Tennessee No. 1 - (1/cage) --------	+13.70	-----	-14.52	-----	+2.54	----	NR*	-----
Tennessee No. 2 - (2/cage) --------	+ 8.98	-----	- 4.49	-----	+4.94	----	NR*	-----
Tennessee No. 3 - (1/cage) --------	+10.99	-----	-11.52	-----	+4.02	----	NR*	-----
Tennessee No. 4 - (2/cage) --------	+12.42	-----	- 8.47	-----	+4.44	----	NR*	-----
Tennessee No. 5 - (2/cage) --------	-----	+ 4.20	-----	-24.39	----	-1.87	----	+ 6.45
Tennessee No. 6 - (2/cage) --------	-----	- 3.45	-----	-18.11	----	-2.52	----	+ 3.01
Tennessee No. 7 - (2/cage) --------	-----	- 5.02	-----	-24.88	----	-3.74	----	+ 7.45
Tennessee No. 8 - (2/cage) --------	-----	-11.63	-----	-15.99	----	-2.97	----	+ 2.47
Texas No. 2 - (2/cage) ------------	- 8.71	-----	+33.55	-----	+5.44	----	+2.35	-----
Texas No. 3 - (2/cage) ------------	- 9.52	-----	+33.95	-----	+5.82	----	+1.94	-----
Texas No. 4 - (2/cage) ------------	- 9.00	-----	+31.26	-----	+5.42	----	+2.27	-----

* Data for this trait not reported.

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Table 3.--Factors used to adjust for test differences--Continued

Test	Feed per pound of eggs (pounds)		Egg weight (oz./dozen)		Large and extra large eggs (percent)		Albumen quality (Haugh units)	
	1970	1971	1970	1971	1970	1971	1970	1971
Central Canada No. 6 - (2/cage)-----	+0.13	+0.10	+0.15	-0.14	+ 7.01	+ 2.60	+ 4.63	+0.61
Central Canada No. 7 - (2/cage)-----	+ .09	+ .01	+ .37	+ .28	+ 9.75	+ 8.28	+ 3.55	- .68
Florida No. 1 - Floor --------------	+ .04	- .03	+1.28	+ .35	+ 9.67	+ 1.51	+ 4.29	+ 4.34
Florida No. 2 - (2/cage)------------	+ .05	+ .14	+ .72	- .37	+ 3.90	- 2.91	+ 6.01	+ 5.24
Florida No. 3 - (3/cage)------------	----	+ .14	----	- .26	-----	- 2.11	-----	+ 4.38
Minnesota No. 1 - Floor------------	- .58	NR*	+ .69	+ .64	- 1.59	- 2.92	-12.22	- 8.77
Minnesota No. 4 - (3/cage) ---------	- .43	+ .30	+ .21	+ .25	- 5.14	- 7.56	-10.96	- 8.11
Missouri Cage - (8/cage) -----------	+ .07	- .05	- .10	- .09	-12.12	-12.64	+ .48	+ 1.10
Missouri Floor --------------------	+ .04	- .21	+ .72	+1.07	- 3.32	- 1.49	+ 1.54	+ .91
New Hampshire No. 4 - Floor-------	+ .30	- .01	+ .27	+ .32	+ 5.87	- 1.02	+ 5.03	+ .23
New Hampshire No. 7 - (3/cage) ----	+ .19	- .32	- .21	+ .19	- .96	- 2.15	+ 5.48	+ .21
New Jersey ---------------------	+ .25	+ .17	-1.37	-2.12	+ 5.13	+ 5.21	- 3.55	- 2.09
North Carolina No. 2 - Slat---------	+ .08	----	-1.52	----	-13.87	-----	+ 2.22	-----
North Carolina No. 3 - Floor -------	+ .22	- .10	- .88	- .20	-10.93	-11.36	+ 2.58	- .05
North Carolina No. 4 - (2/cage) -----	+ .24	- .17	-1.62	-1.42	-13.83	-16.55	+ 1.09	- 1.80
North Carolina No. 5 - (7/cage) -----	----	- .35	----	-1.19	-----	-17.19	-----	- 2.07
Pennsylvania No. 1 - Floor ---------	- .28	+ .05	+ .46	+ .19	+14.56	+ 9.95	- .31	- .49
Pennsylvania No. 2 - (3/cage)-------	- .51	- .26	+ .21	+ .17	+12.59	+10.47	+ .08	+ 1.66
Tennessee No. 1 - (1/cage) ---------	- .05	----	+ .30	----	+ 1.08	-----	+ 4.41	-----
Tennessee No. 2 - (2/cage) ---------	- .09	----	+ .01	----	- 3.12	-----	+ 3.09	-----
Tennessee No. 3 - (1/cage) ---------	- .03	----	+ .39	----	+ 4.46	-----	+ 2.59	-----
Tennessee No. 4 - (2/cage) ---------	- .08	----	+ .35	----	+ 1.42	-----	+ 4.20	-----
Tennessee No. 5 - (2/cage) ---------	----	+ .06	----	+ .23	-----	+ 4.25	-----	+ 3.41
Tennessee No. 6 - (2/cage) ---------	----	+ .12	----	- .02	-----	+ .65	-----	+ 4.30
Tennessee No. 7 - (2/cage) ---------	----	+ .08	----	+ .19	-----	+ 2.72	-----	+ 2.80
Tennessee No. 8 - (2/cage) ---------	----	+ .12	----	- .08	-----	+ .18	-----	+ 2.32
Texas No. 2 - (2/cage) ------------	- .10	----	+1.16	----	NR*	-----	- 3.31	-----
Texas No. 3 - (2/cage) ------------	- .10	----	+1.01	----	NR*	-----	- 3.26	-----
Texas No. 4 - (2/cage) ------------	- .08	----	+1.14	----	NR*	-----	- 3.66	----

* Data for this trait not reported.

Table 3.--Factors used to adjust for test differences--Continued

Test	Blood spots 1/8 inch or more (percent)		Blood spots less than 1/8 inch (percent)		Meat spots 1/8 inch or more (percent)		Meat spots less than 1/8 inch (percent)	
	1970	1971	1970	1971	1970	1971	1970	1971
Central Canada No. 6 - (2/cage)---	-0.01	-0.20	-0.09	-0.16	+0.02	+0.01	+0.02	-0.36
Central Canada No. 7 - (2/cage)---	+ .01	- .11	- .02	- .12	+ .03	+ .01	+ .02	- .38
Florida No. 1 - Floor ------------	- .03	- .01	- .01	+ .02	- .11	+ .01	+ .10	+ .41
Florida No. 2 - (2/cage)----------	- .17	- .01	- .07	+ .01	- .15	+ .01	+ .07	+ .40
Florida No. 3 - (3/cage)----------	----	+ .12	----	- .01	----	+ .01	----	+ .37
Minnesota No. 1 - Floor----------	- .22	- .03	+ .06	- .06	+ .01	+ .01	+ .33	+ .34
Minnesota No. 4 - (3/cage) -------	- .06	- .01	- .05	- .14	- .02	+ .01	+ .33	+ .35
Missouri Cage - (8/cage) ---------	- .11	- .05	- .46	- .14	+ .01	- .01	+ .01	+ .06
Missouri Floor -------------------	- .01	- .01	- .16	- .04	+ .01	- .01	+ .10	+ .17
New Hampshire No. 4 - Floor-----	+ .09	+ .57	+ .93	+1.15	- .49	+ .37	- .55	-2.65
New Hampshire No. 7 - (3/cage) --	+ .59	+ .39	+ .73	+ .33	+ .01	+ .05	- .24	-1.26
New Jersey ----------------------	+ .09	+ .02	- .01	+ .06	+ .01	- .22	-1.19	-2.38
North Carolina No. 2 - Slat -------	- .01	----	- .02	----	- .03	----	- .11	----
North Carolina No. 3 - Floor -----	- .01	- .03	- .02	+ .01	- .10	- .04	- .03	+ .17
North Carolina No. 4 - (2/cage)---	- .02	- .05	- .03	+ .01	- .05	- .08	+ .01	+ .17
North Carolina No. 5 - (7/cage)---	----	- .02	----	+ .01	----	- .11	----	+ .07
Pennsylvania No. 1 - Floor -------	+ .04	+ .03	+ .01	+ .04	+ .08	+ .19	+ .31	+ .19
Pennsylvania No. 2 - (3/cage)-----	+ .01	+ .03	- .03	+ .01	+ .11	+ .17	+ .23	+ .09
Tennessee No. 1 - (1/cage) -------	+ .07	----	+ .01	----	+ .01	----	+ .28	----
Tennessee No. 2 - (2/cage) -------	+ .25	----	+ .01	----	+ .01	----	+ .43	----
Tennessee No. 3 - (1/cage) -------	+ .02	----	+ .33	----	+ .02	----	+ .38	----
Tennessee No. 4 - (2/cage) -------	+ .06	----	+ .01	----	- .01	----	+ .37	----
Tennessee No. 5 - (2/cage) -------	----	+ .03	----	+ .02	----	- .04	----	+ .08
Tennessee No. 6 - (2/cage) -------	----	+ .02	----	- .02	----	- .03	----	+ .19
Tennessee No. 7 - (2/cage) -------	----	+ .06	----	- .01	----	- .01	----	+ .14
Tennessee No. 8 - (2/cage) -------	----	+ .13	----	+ .01	----	- .01	----	- .01
Texas No. 2 - (2/cage) -----------	- .06	----	+ .19	----	- .31	----	+ .03	----
Texas No. 3 - (2/cage) -----------	- .10	----	+ .19	----	- .21	----	+ .01	----
Texas No. 4 - (2/cage) -----------	- .21	----	+ .04	----	- .35	----	+ .05	----

Table 3.--Factors used to adjust for test differences--Continued

Test	Specific gravity score		Body weight (pounds)		Income over feed and chick cost (dollars)	
	1970	1971	1970	1971	1970	1971
Central Canada No. 6 - (2/cage)------	+0.72	+0.69	-0.03	-0.10	-0.15	+1.28
Central Canada No. 7 - (2/cage)------	+ .58	+ .29	+ .05	- .01	- .11	+1.57
Florida No. 1 - Floor---------------	- .52	-1.17	+ .02	+ .16	NR*	NR*
Florida No. 2 - (2/cage)-------------	- .73	-1.26	+ .13	+ .27	NR*	NR*
Florida No. 3 - (3/cage)-------------	----	-1.52	----	+ .42	----	NR*
Minnesota No. 1 - Floor-------------	- .52	- .80	- .18	- .14	+ .80	NR*
Minnesota No. 4 - (3/cage) ----------	- .34	-1.43	- .11	- .19	+ .89	-1.06
Missouri Cage - (8/cage)-------------	- .06	- .04	- .13	+ .02	-1.52	- .09
Missouri Floor---------------------	- .06	+ .37	+ .27	+ .38	- .98	+ .78
New Hampshire No. 4 - Floor--------	+1.56	+ .77	- .11	- .21	-3.03	+ .19
New Hampshire No. 7 - (3/cage) -----	+ .99	+ .63	- .18	- .07	-2.22	+ .64
New Jersey -----------------------	-1.55	-1.95	+ .08	+ .08	-2.38	+ .54
North Carolina No. 2 - Slat----------	+1.49	----	- .05	----	+1.10	----
North Carolina No. 3 - Floor --------	+1.58	+1.75	-·.11	+ .29	+ .17	+ .45
North Carolina No. 4 - (2/cage) ------	+1.18	+1.35	- .08	+ .28	+ .57	+1.01
North Carolina No. 5 - (7/cage) ------	----	+1.31	----	+ .36	----	+1.36
Pennsylvania No. 1 - Floor ----------	- .44	- .74	+ .06	- .24	- .28	+1.67
Pennsylvania No. 2 - (3/cage)--------	- .36	- .50	- .05	- .19	- .04	+2.13
Tennessee No. 1 - (1/cage) ----------	+ .70	----	- .04	----	-1.71	----
Tennessee No. 2 - (2/cage) ----------	+ .80	----	- .06	----	-1.49	----
Tennessee No. 3 - (1/cage) ----------	+ .50	----	+ .02	----	-1.78	----
Tennessee No. 4 - (2/cage) ----------	+ .99	----	+ .18	----	-1.68	----
Tennessee No. 5 - (2/cage) ----------	----	+ .85	----	- .02	----	+ .60
Tennessee No. 6 - (2/cage) ----------	----	+ .84	----	- .26	----	+ .65
Tennessee No. 7 - (2/cage) ----------	----	+ .72	----	+ .14	----	+ .50
Tennessee No. 8 - (2/cage) ----------	----	+ .81	----	+ .16	----	+ .52
Texas No. 2 - (2/cage)--------------	-1.38	----	+ .30	----	NR*	----
Texas No. 3 - (2/cage)--------------	-1.37	----	+ .19	----	NR*	----
Texas No. 4 - (2/cage)--------------	-1.33	----	+ .24	----	NR*	----

* Data for this trait not reported.

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How Group Rankings Were Determined for Each Trait

The information in this section deals only with the test data obtained during the 1970-71 test year.

The performance of each entry in the 10 Random Sample Egg Production Tests conducted during 1970-71 is reported as the Range Group Rank of the entry for the trait measured. These rankings were determined in the following manner. For each trait the entries in each test were alined in descending order of performance from the most desirable to the least desirable. The "mean" or average performance for the trait was then determined. All entries above the mean are in range group 1 or 2, and those below the mean are in range group 3 or 4. The dividing point for the entries above or below the mean is the midpoint of the range between the mean and the top or bottom entry. An illustration follows.

Stocks entered in the Tennessee test had a mean, or average, of 230.75 eggs for the trait "Egg Production per Hen Housed." The highest average number of eggs laid by an entry in this test was 245.30, and the lowest average number laid by an entry was 200.20 eggs. To arrive at the dividing point between the first and second range groups, the mean (230.75) was subtracted from the highest number of eggs (245.30). The result, 14.55 eggs, was divided by two to get the midpoint of the range (7.28 eggs). This was subtracted from the highest number of eggs (245.30 minus 7.28) to arrive at the dividing point (238.02 eggs) between the first and second range groups. To determine the dividing point between the third and fourth range groups, the same procedure was used, except that the lowest average number of eggs (200.20) was subtracted from the mean (230.75). This difference, or range, (30.55 eggs) was then divided by two, and the result (15.28 eggs) was subtracted from the mean (230.75 minus 15.28) to get the dividing point (215.47 eggs) between the third and fourth range groups. These determinations for each trait and test are tabulated in table 4.

The breeders of the stock tested and the Range Group Ranking, by traits, of each entry of the stock are shown in table 5. Each entry is also identified by the abbreviated name of the entrant. If the sample was drawn from a source other than the entrant's hatchery or supply flock, the abbreviated name of the source of the sample is shown in parentheses following the entrant's name.

The listing of the entries in the four range groups, with all entries of each stock in one table, allows the reader to quickly evaulate a stock based on this method of analysis. It should be kept in mind, however, that this method provides just four broad classifications. One-tenth of an egg or one-tenth of a percent difference in mortality could move an entry up or down one Range Group Rank, depending on its place in the range grouping.

Tabular Listing of Stock Entered in Tests

The listing of all stock entered in the 1970-71 Random Sample Egg Production Tests is given in table 6. This Listing will permit the reader to see at a glance the abbreviated name of the breeder of the stock, the strain or trade name of the stock, and the total number of entries of each stock which were tested during 1970-71. The tests in which each stock was entered are also given. The full name and address of the breeder can be found in table 1.

Management and Environmental Conditions at Tests

Some of the more important management and environmental conditions found in the individual tests during the 1970-71 testing year are found in table 7. Other conditions at the various testing stations were undoubtedly different. However, the important consideration is that all entries at a given location were treated as nearly alike as possible.

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Table 4. --Upper and lower limits for each range group by traits and tests, 1970-71

Traits measured	Tests			
	Central Canada	Florida	Minnesota	Missouri Cage
Income over feed and chick cost;				
Average - - - - dol./hen housed -	1.518		3.894	2.809
Range group 1- - - - - - - - - - -	2.010 - 1.764		4.640 - 4.267	3.560 - 3.184
Range group 2- - - - - - - - - - -	1.763 - 1.518	Not Reported	4.266 - 3.894	3.183 - 2.809
Range group 3- - - - - - - - - - -	1.517 - 1.199		3.893 - 3.537	2.808 - 2.369
Range group 4- - - - - - - - - - -	1.198 - 0.880		3.536 - 3.180	2.368 - 1.930
Egg production;				
Average - - -number/hen housed-	204.93	245.80	218.56	184.01
Range group 1- - - - - - - - - - -	222.90 - 213.91	271.30 - 258.55	240.50 - 229.53	218.60 - 201.30
Range group 2- - - - - - - - - - -	213.90 - 204.93	258.54 - 245.80	229.52 - 218.56	201.29 - 184.01
Range group 3- - - - - - - - - - -	204.92 - 195.86	245.79 - 235.10	218.55 - 206.93	184.00 - 167.85
Range group 4- - - - - - - - - - -	195.85 - 186.80	235.09 - 224.40	206.92 - 195.30	167.84 - 151.70
Age at 50 percent production;				
Average - - - - - - - - - - days -	180.1	155.7	171.6	194.4
Range group 1- - - - - - - - - - -	167.0 - 173.6	151.0 - 153.4	162.0 - 166.8	185.0 - 189.7
Range group 2- - - - - - - - - - -	173.7 - 180.1	153.5 - 155.7	166.9 - 171.6	189.8 - 194.4
Range group 3- - - - - - - - - - -	180.2 - 186.6	155.8 - 161.9	171.7 - 177.8	194.5 - 200.2
Range group 4- - - - - - - - - - -	186.7 - 193.0	162.0 - 168.0	177.9 - 184.0	200.3 - 206.0
Growing mortality;				
Average - - - - - - - -percent -	2.95	2.17	1.13	6.35
Range group 1- - - - - - - - - - -	1.30 - 2.13	1.30 - 1.74	0.00 - 0.57	3.00 - 4.68
Range group 2- - - - - - - - - - -	2.14 - 2.95	1.75 - 2.17	0.58 - 1.13	4.69 - 6.35
Range group 3- - - - - - - - - - -	2.96 - 3.83	2.18 - 2.59	1.14 - 1.87	6.36 - 10.98
Range group 4- - - - - - - - - - -	3.84 - 4.70	2.60 - 3.00	1.88 - 2.60	10.99 - 15.60
Laying mortality;				
Average - - - - - - - -percent -	15.96	13.02	7.84	22.13
Range group 1- - - - - - - - - - -	10.70 - 13.33	8.40 - 10.71	4.30 - 6.07	6.40 - 14.27
Range group 2- - - - - - - - - - -	13.34 - 15.96	10.72 - 13.02	6.08 - 7.84	14.28 - 22.13
Range group 3- - - - - - - - - - -	15.97 - 21.03	13.03 - 15.91	7.85 - 10.57	22.14 - 28.77
Range group 4- - - - - - - - - - -	21.04 - 26.10	15.92 - 18.80	10.58 - 13.30	28.78 - 35.40
Egg weight;				
Average - - - - - ounces/dozen -	25.47	25.63	25.21	25.74
Range group 1- - - - - - - - - - -	26.40 - 25.93	26.40 - 26.01	25.70 - 25.45	26.40 - 26.07
Range group 2- - - - - - - - - - -	25.92 - 25.47	26.00 - 25.63	25.44 - 25.21	26.06 - 25.74
Range group 3- - - - - - - - - - -	25.46 - 24.93	25.62 - 25.21	25.20 - 24.95	25.73 - 25.32
Range group 4- - - - - - - - - - -	24.92 - 24.40	25.20 - 24.80	24.94 - 24.70	25.31 - 24.90
Large and extra large eggs;				
Average - - - - - - - -percent -	69.74	76.37	81.82	88.32
Range group 1- - - - - - - - - - -	80.80 - 75.27	82.70 - 79.53	87.20 - 84.51	93.30 - 90.81
Range group 2- - - - - - - - - - -	75.26 - 69.74	79.52 - 76.37	84.50 - 81.82	90.80 - 88.32
Range group 3- - - - - - - - - - -	69.73 - 62.17	76.36 - 73.28	81.81 - 78.09	88.31 - 83.96
Range group 4- - - - - - - - - - -	62.16 - 54.60	73.27 - 70.20	78.08 - 73.20	83.95 - 79.60
Feed per pound of eggs;				
Average - - - - - - - - pounds -	2.626	2.636	2.407	2.850
Range group 1- - - - - - - - - - -	2.480 - 2.553	2.510 - 2.573	2.170 - 2.289	2.600 - 2.725
Range group 2- - - - - - - - - - -	2.554 - 2.626	2.574 - 2.636	2.290 - 2.407	2.726 - 2.850
Range group 3- - - - - - - - - - -	2.627 - 2.808	2.637 - 2.763	2.408 - 2.564	2.851 - 3.105
Range group 4- - - - - - - - - - -	2.809 - 2.990	2.764 - 2.890	2.565 - 2.720	3.106 - 3.360
Albumen quality;				
Average - - - - - - Haugh units -	79.21	74.05	86.94	77.91
Range group 1- - - - - - - - - - -	83.80 - 81.50	80.50 - 77.27	90.60 - 88.77	82.60 - 80.25
Range group 2- - - - - - - - - - -	81.49 - 79.21	77.26 - 74.05	88.76 - 86.94	80.24 - 77.91
Range group 3- - - - - - - - - - -	79.20 - 77.15	74.04 - 71.92	86.93 - 85.32	77.90 - 75.00
Range group 4- - - - - - - - - - -	77.14 - 75.10	71.91 - 69.80	85.31 - 83.70	74.99 - 72.10
Blood spots, all sizes;				
Average - - - - - - - -percent -	3.96	2.63	4.99	3.67
Range group 1- - - - - - - - - - -	1.90 - 2.93	1.50 - 2.07	0.00 - 2.50	0.90 - 2.29
Range group 2- - - - - - - - - - -	2.94 - 3.96	2.08 - 2.63	2.51 - 4.99	2.30 - 3.67
Range group 3- - - - - - - - - - -	3.97 - 5.33	2.64 - 3.22	5.00 - 8.40	3.68 - 4.69
Range group 4- - - - - - - - - - -	5.34 - 6.70	3.23 - 3.80	8.41 - 11.80	4.70 - 5.70

Traits measured	Tests		
	Missouri Floor	New Hampshire	New Jersey
Income over feed and chick cost;			
Average - - - - - dol./hen housed -	2.149	2.247	2.280
Range group 1 - - - - - - - - - - - -	3.620 - 2.884	3.380 - 2.813	3.010 - 2.645
Range group 2 - - - - - - - - - - - -	2.883 - 2.149	2.812 - 2.247	2.644 - 2.280
Range group 3 - - - - - - - - - - - -	2.148 - 1.574	2.246 - 1.438	2.279 - 1.680
Range group 4 - - - - - - - - - - - -	1.573 - 1.000	1.437 - 0.630	1.679 - 1.080
Egg production;			
Average - - - number/hen housed -	180.83	188.05	214.00
Range group 1 - - - - - - - - - - - -	245.20 - 213.01	231.40 - 209.72	237.00 - 225.50
Range group 2 - - - - - - - - - - - -	213.00 - 180.83	209.71 - 188.05	225.49 - 214.00
Range group 3 - - - - - - - - - - - -	180.82 - 149.21	188.04 - 171.62	213.99 - 195.95
Range group 4 - - - - - - - - - - - -	149.20 - 117.60	171.61 - 155.20	195.94 - 177.90
Age at 50 percent production			
Average - - - - - - - - - - days -	185.9	179.7	172.7
Range group 1 - - - - - - - - - - - -	156.0 - 171.0	166.0 - 172.9	156.0 - 164.4
Range group 2 - - - - - - - - - - - -	171.1 - 185.9	173.0 - 179.7	164.5 - 172.7
Range group 3 - - - - - - - - - - - -	186.0 - 201.0	179.8 - 185.4	172.8 - 183.9
Range group 4 - - - - - - - - - - - -	201.1 - 216.0	185.5 - 191.0	184.0 - 195.0
Growing mortality;			
Average - - - - - - - - - percent -	9.30	12.06	3.49
Range group 1 - - - - - - - - - - - -	1.00 - 5.15	2.60 - 7.33	0.00 - 1.75
Range group 2 - - - - - - - - - - - -	5.16 - 9.30	7.34 - 12.06	1.76 - 3.49
Range group 3 - - - - - - - - - - - -	9.31 - 17.50	12.07 - 18.43	3.50 - 5.40
Range group 4 - - - - - - - - - - - -	17.51 - 25.70	18.44 - 24.80	5.41 - 7.30
Laying mortality;			
Average - - - - - - - - - percent -	28.83	18.10	22.00
Range group 1 - - - - - - - - - - - -	7.10 - 17.97	7.10 - 12.60	8.00 - 15.00
Range group 2 - - - - - - - - - - - -	17.98 - 28.83	12.61 - 18.10	15.01 - 22.00
Range group 3 - - - - - - - - - - - -	28.84 - 40.27	18.11 - 25.65	22.01 - 27.00
Range group 4 - - - - - - - - - - - -	40.28 - 51.70	25.66 - 33.20	27.01 - 32.00
Egg weight;			
Average - - - - - - ounces/dozen -	24.58	25.85	27.78
Range group 1 - - - - - - - - - - - -	26.50 - 25.54	27.50 - 26.67	28.50 - 28.14
Range group 2 - - - - - - - - - - - -	25.53 - 24.58	26.66 - 25.85	28.13 - 27.78
Range group 3 - - - - - - - - - - - -	24.57 - 23.84	25.84 - 25.02	27.77 - 27.29
Range group 4 - - - - - - - - - - - -	23.83 - 23.10	25.01 - 24.20	27.28 - 26.80
Large and extra large eggs;			
Average - - - - - - - - - - percent -	77.54	81.55	71.53
Range group 1 - - - - - - - - - - - -	90.30 - 83.92	91.50 - 86.52	81.10 - 76.31
Range group 2 - - - - - - - - - - - -	83.91 - 77.54	86.51 - 81.55	76.30 - 71.53
Range group 3 - - - - - - - - - - - -	77.53 - 71.42	81.54 - 73.07	71.52 - 66.21
Range group 4 - - - - - - - - - - - -	71.41 - 65.30	73.06 - 64.60	66.20 - 60.90
Feed per pound of eggs;			
Average - - - - - - - - - - pounds -	2.935	3.107	2.568
Range group 1 - - - - - - - - - - - -	2.560 - 2.748	2.660 - 2.884	2.350 - 2.459
Range group 2 - - - - - - - - - - - -	2.749 - 2.935	2.885 - 3.107	2.460 - 2.568
Range group 3 - - - - - - - - - - - -	2.936 - 3.163	3.108 - 3.389	2.569 - 2.839
Range group 4 - - - - - - - - - - - -	3.164 - 3.390	3.390 - 3.670	2.840 - 3.110
Albumen quality;			
Average - - - - - - - Haugh units -	78.07	78.24	81.31
Range group 1 - - - - - - - - - - - -	83.90 - 80.98	83.10 - 80.67	86.80 - 84.05
Range group 2 - - - - - - - - - - - -	80.97 - 78.07	80.66 - 78.24	84.04 - 81.31
Range group 3 - - - - - - - - - - - -	78.06 - 76.23	78.23 - 76.27	81.30 - 78.75
Range group 4 - - - - - - - - - - - -	76.22 - 74.40	76.26 - 74.30	78.74 - 76.20
Blood spots, all sizes;			
Average - - - - - - - - - - percent -	2.82	1.92	2.58
Range group 1 - - - - - - - - - - - -	0.90 - 1.86	0.00 - 0.86	0.00 - 1.29
Range group 2 - - - - - - - - - - - -	1.87 - 2.82	0.87 - 1.92	1.30 - 2.58
Range group 3 - - - - - - - - - - - -	2.83 - 3.66	1.93 - 4.36	2.59 - 4.99
Range group 4 - - - - - - - - - - - -	3.67 - 4.50	4.37 - 6.80	5.00 - 7.40

Traits measured	Tests		
	North Carolina	Pennsylvania	Tennessee
Income over feed and chick cost;			
Average - - - - - dol./hen housed -	1.750	0.914	2.236
Range group 1 - - - - - - - - - - - -	2.610 - 2.180	1.640 - 1.277	2.670 - 2.453
Range group 2 - - - - - - - - - - - -	2.179 - 1.750	1.276 - 0.914	2.452 - 2.236
Range group 3 - - - - - - - - - - - -	1.749 - 1.055	0.913 - 0.587	2.235 - 1.803
Range group 4 - - - - - - - - - - - -	1.054 - 0.360	0.586 - 0.260	1.802 - 1.370
Egg production;			
Average - - - number/hen housed -	187.46	190.72	230.75
Range group 1 - - - - - - - - - - - -	220.40 - 203.93	222.80 - 206.76	245.30 - 238.02
Range group 2 - - - - - - - - - - - -	203.92 - 187.46	206.75 - 190.72	238.01 - 230.75
Range group 3 - - - - - - - - - - - -	187.45 - 163.68	190.71 - 171.11	230.74 - 215.47
Range group 4 - - - - - - - - - - - -	163.67 - 139.90	171.10 - 151.50	215.46 - 200.20
Age at 50 percent production;			
Average - - - - - - - - - - - days -	174.5	169.5	174.4
Range group 1 - - - - - - - - - - - -	165.0 - 169.8	158.0 - 163.9	167.0 - 170.7
Range group 2 - - - - - - - - - - - -	169.9 - 174.5	163.8 - 169.5	170.8 - 174.4
Range group 3 - - - - - - - - - - - -	174.6 - 179.3	169.6 - 175.3	174.5 - 179.2
Range group 4 - - - - - - - - - - - -	179.4 - 184.0	175.4 - 181.0	179.3 - 184.0
Growing mortality;			
Average - - - - - - - - - -percent -	3.90	3.33	3.36
Range group 1 - - - - - - - - - - - -	1.10 - 2.50	1.20 - 2.27	0.80 - 2.08
Range group 2 - - - - - - - - - - - -	2.51 - 3.90	2.28 - 3.33	2.09 - 3.36
Range group 3 - - - - - - - - - - - -	3.91 - 6.20	3.34 - 4.87	3.37 - 5.08
Range group 4 - - - - - - - - - - - -	6.21 - 8.50	4.88 - 6.40	5.09 - 6.80
Laying mortality;			
Average - - - - - - - - - -percent -	21.46	23.30	13.25
Range group 1 - - - - - - - - - - - -	7.40 - 14.43	3.50 - 13.40	3.30 - 8.28
Range group 2 - - - - - - - - - - - -	14.44 - 21.46	13.41 - 23.30	8.29 - 13.25
Range group 3 - - - - - - - - - - - -	21.47 - 28.73	23.31 - 36.95	13.26 - 17.68
Range group 4 - - - - - - - - - - - -	28.74 - 36.00	36.96 - 50.60	17.69 - 22.10
Egg weight;			
Average - - - - - - ounces/dozen -	26.71	25.68	25.29
Range group 1 - - - - - - - - - - - -	28.50 - 27.60	27.10 - 26.39	26.20 - 25.74
Range group 2 - - - - - - - - - - - -	27.59 - 26.71	26.38 - 25.68	25.73 - 25.29
Range group 3 - - - - - - - - - - - -	26.70 - 25.95	25.67 - 24.89	25.28 - 24.64
Range group 4 - - - - - - - - - - - -	25.94 - 25.20	24.88 - 24.10	24.63 - 24.00
Large and extra large eggs;			
Average - - - - - - - - - -percent -	90.99	67.13	70.80
Range group 1 - - - - - - - - - - - -	95.90 - 93.44	80.60 - 73.86	80.50 - 75.65
Range group 2 - - - - - - - - - - - -	93.43 - 90.99	73.85 - 67.13	75.64 - 70.80
Range group 3 - - - - - - - - - - - -	90.98 - 87.34	67.12 - 54.76	70.79 - 60.75
Range group 4 - - - - - - - - - - - -	87.33 - 83.70	54.75 - 42.40	60.74 - 50.70
Feed per pound of eggs;			
Average - - - - - - - - - - pounds -	2.988	2.887	2.648
Range group 1 - - - - - - - - - - - -	2.590 - 2.789	2.660 - 2.774	2.470 - 2.559
Range group 2 - - - - - - - - - - - -	2.790 - 2.988	2.775 - 2.887	2.560 - 2.648
Range group 3 - - - - - - - - - - - -	2.989 - 3.319	2.888 - 3.104	2.649 - 2.829
Range group 4 - - - - - - - - - - - -	3.320 - 3.650	3.105 - 3.320	2.830 - 3.010
Albumen quality;			
Average - - - - - - -Haugh units -	80.59	78.71	75.31
Range group 1 - - - - - - - - - - - -	86.20 - 83.39	84.20 - 81.45	82.30 - 78.80
Range group 2 - - - - - - - - - - - -	83.38 - 80.59	81.44 - 78.71	78.79 - 75.31
Range group 3 - - - - - - - - - - - -	80.58 - 78.64	78.70 - 76.35	75.30 - 72.45
Range group 4 - - - - - - - - - - - -	78.63 - 76.70	76.34 - 74.00	72.44 - 69.60
Blood spots, all sizes;			
Average - - - - - - - - - -percent -	3.06	2.96	2.99
Range group 1 - - - - - - - - - - - -	1.00 - 2.03	0.50 - 1.73	0.90 - 1.95
Range group 2 - - - - - - - - - - - -	2.04 - 3.06	1.74 - 2.96	1.96 - 2.99
Range group 3 - - - - - - - - - - - -	3.07 - 5.93	2.97 - 5.03	3.00 - 3.90
Range group 4 - - - - - - - - - - - -	5.94 - 8.80	5.04 - 7.10	3.91 - 4.80

Table 5.--Range group ranking for stock entered in 1970-71 random sample egg production tests

ENTRY IDENTIFICATION	TEST	BREEDING	STRAIN OR TRADENAME	INCOME OVER FEED AND CHICK COST ($)	EGG PRODUCTION (Hen housed) (No.)	AGE AT 50% PRODUCTION (Days)	GROWING MORTALITY (%)	LAYING MORTALITY (%)	EGG WEIGHT (oz)	LARGE AND EXTRA LARGE EGGS (%)	FEED PER POUND OF EGGS (lbs)	ALBUMEN QUALITY (H.U.)	BLOOD SPOTS (%)
Animal Research Institute, Ottawa, Ontario													
A.R.I., Ont. -----	C.C.	WL PS	Kentville R. B. C. -	4	4	4	3	1	4	4	4	3	4
Anthony, Geo. M. & Sons, Strausstown, Pennsylvania													
Anthony, Pa. -----	Minn.	WL SX	Anthony -----	3	3	4	2	3	3	2	3	3	2
Anthony, Pa. -----	Mo.-F.	WL SX	Anthony -----	2	2	3	1	1	2	2	3	1	3
Anthony, Pa. -----	N.J.	WL SX	Anthony -----	1	2	3	1	2	3	2	1	2	3
Anthony, Pa. -----	N.C.	WL SX	Anthony -----	3	3	4	1	3	3	2	2	2	2
Anthony, Pa. -----	Pa.	WL SX	Anthony -----	1	1	3	3	2	3	3	2	2	3
Anthony, Pa. -----	Tenn.	WL SX	Anthony -----	3	3	4	3	3	2	2	2	2	3
Babcock Poultry Farm, Inc., Ithaca, New York													
Babcock, N.Y. (Gulf Coast, Hodges, Fla.) -	Fla.	WL SX	Babcock B-300 ---	-	1	1	1	1	3	3	1	4	3
Babcock, N.Y. -----	Mo.-C.	WL SX	Babcock B-300 ---	1	1	1	3	2	2	1	1	3	2
Babcock, N.Y. -----	Mo.-F.	WL SX	Babcock B-300 ---	2	2	1	4	3	3	3	1	4	2
Babcock, N.Y. (Babcock, Pa.) -----	N.J.	WL SX	Babcock B-300 ---	2	1	1	3	3	2	2	2	4	3
Babcock, N.Y. (Babcock, Pa.) -----	Pa.	WL SX	Babcock B-300 ---	4	4	1	3	4	2	2	2	4	2
Babcock Poultry Farm, Inc., Ithaca, New York													
Babcock, N.Y. (Wales, Ontario)-----	C.C.	WL SX	Babcock B-305 ---	2	3	2	3	3	1	1	2	4	1
Babcock, N.Y. (Gulf Coast, Hodges, Fla.) -	Fla.	WL SX	Babcock B-305 ---	-	1	1	1	1	2	2	1	4	1
Babcock, N.Y. (Allstate, Minn.)-----	Minn.	WL SX	Babcock B-305 ---	1	1	1	2	2	1	2	1	4	2
Babcock, N.Y.-----	Mo.-F.	WL SX	Babcock B-305 ---	4	4	2	4	4	2	2	2	4	2
Babcock, N.Y.-----	N.H.	WL SX	Babcock B-305 ---	2	2	1	4	4	3	3	1	4	3
Babcock, N.Y. (Babcock, Pa.)-----	N.J.	WL SX	Babcock B-305 ---	2	3	1	2	4	1	2	1	4	1
Babcock, N.Y. (Harrold's, Ga.)-----	N.C.	WL SX	Babcock B-305 ---	1	1	1	3	2	3	3	2	4	1
Babcock, N.Y. (Babcock, Pa.)-----	Pa.	WL SX	Babcock B-305 ---	4	4	2	1	4	2	2	1	4	4
Babcock, N.Y.-----	Tenn.	WL SX	Babcock B-305 ---	1	1	1	4	3	1	1	1	4	2
Babcock Poultry Farm, Inc., Ithaca, New York													
Babcock, N.Y.-----	N.H.	RIRxBPR BX	Babcock B-390 ---	3	4	2	2	3	1	1	3	4	1
Babcock, N.Y. (Beamsdale, N.C.) -----	N.C.	RIRxBPR BX	Babcock B-390 ---	2	1	4	2	2	1	1	3	3	4
Babcock, N.Y. (Beamsdale, N.C.) -----	Pa.	RIRxBPR BX	Babcock B-390 ---	2	1	2	3	1	2	1	3	3	3
Burling Hatchery, Oxford, Pennsylvania													
Burling, Pa.-----	Pa.	WL SX	Burling Leghorn--	4	4	4	4	4	3	3	3	2	2
Burling Hatchery, Oxford, Pennsylvania													
Burling, Pa.-----	Pa.	RIRxWPR BX	Golden Tri-Cross-	2	2	1	2	1	1	1	3	3	3
Canada Department of Agriculture, Ottawa, Ontario													
Canada, D.A., Ontario-----	C.C.	WL SX	P.D. 58	1	1	3	2	1	4	3	1	1	3

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Table 5.--Range group ranking for stock entered in 1970-71 random sample egg production tests--Continued

ENTRY IDENTIFICATION	TEST	BREEDING	STRAIN OR TRADENAME	INCOME OVER FEED AND CHICK COST ($)	EGG PRODUCTION (Hen housed) (No.)	AGE AT 50% PRODUCTION (Days)	GROWING MORTALITY (%)	LAYING MORTALITY (%)	EGG WEIGHT (oz)	LARGE AND EXTRA LARGE EGGS (%)	FEED PER POUND OF EGGS (lbs)	ALBUMEN QUALITY (H.U.)	BLOOD SPOTS (%)
Carey Farms, Marion, Ohio													
Carey, Ohio-------------------	Mo.-F.	WL	IN	Carey's New Nick-	3	3	4	2	3	2	2	3	4	3
Carey, Ohio-------------------	Pa.	WL	IN	Carey's New Nick-	3	3	3	2	3	3	3	3	4	1
Carey, Ohio-------------------	Tenn.	WL	IN	Carey's New Nick-	3	3	4	1	3	2	2	3	2	2
Carey Farms, Marion, Ohio													
Carey, Ohio-------------------	Minn.	WL	INX	Carey Nick--------	2	2	4	3	2	4	2	2	4	1
Cashman Leghorn Farm, Webster, Kentucky													
Cashman, Ky.------------------	Fla.	WL	IN	Cashman Hi-Cash-	-	4	4	2	3	2	2	4	3	4
Cashman, Ky.------------------	Mo.-C.	WL	IN	Cashman Hi-Cash-	2	2	4	3	2	3	2	2	3	4
Cashman, Ky.------------------	Mo.-F.	WL	IN	Cashman Hi-Cash-	4	3	4	4	3	3	3	4	2	3
Colonial Poultry Farms, Inc., Pleasant Hill, Missouri													
Colonial, Mo.-----------------	Fla.	WL	INX	True-Line 142-----	-	4	1	1	3	2	3	3	2	2
Colonial, Mo.-----------------	Mo.-F.	WL	INX	True-Line 142-----	3	3	2	2	3	3	4	3	3	3
Colonial Poultry Farms, Inc., Pleasant Hill, Missouri													
Colonial, Mo. (Colonial, Minn.)-----	Minn.	WL	IN	True-Line 365 B--	2	3	1	2	3	3	3	3	2	4
Colonial, Mo.-----------------	Mo.-C.	WL	IN	True-Line 365 B--	2	2	1	3	2	3	3	2	2	4
Colonial, Mo.-----------------	Mo.-F.	WL	IN	True-Line 365 B--	3	3	2	4	3	3	3	2	3	4
Colonial, Mo.-----------------	N.J.	WL	IN	True-Line 365 B--	2	3	1	4	3	2	3	2	3	2
Colonial, Mo.-----------------	Pa.	WL	IN	True-Line 365 B--	4	4	3	4	4	3	3	3	3	4
Davis, Joe K., Hatchery, Earl, North Carolina													
Davis, N.C.-------------------	Mo.-C.	RIR	SX	Davis Red--------	3	2	4	1	1	4	3	3	2	4
Davis, N.C.-------------------	Mo.-F.	RIR	SX	Davis Red--------	3	3	4	1	3	2	2	4	3	4
Davis, N.C.-------------------	N.H.	RIR	SX	Davis Red--------	3	2	3	2	1	3	3	2	2	1
Davis, N.C.-------------------	N.C.	RIR	SX	Davis Red--------	2	2	4	1	1	3	3	3	3	4
Fisher Poultry Farm, Ltd., Ayton, Ontario													
Fisher, Ontario---------------	C.C.	WL	SX	Fisher 105-------	3	4	1	4	4	3	3	2	1	2
Fisher, Ontario---------------	Minn.	WL	SX	Fisher 105-------	1	1	2	3	1	3	2	1	1	1
Fisher, Ontario---------------	Mo.-C.	WL	SX	Fisher 105-------	3	3	1	1	4	3	3	1	1	2
Fisher, Ontario---------------	N.C.	WL	SX	Fisher 105-------	3	3	2	3	4	2	3	2	2	2
Fisher, Ontario---------------	Tenn.	WL	SX	Fisher 105-------	2	2	2	2	4	3	3	1	1	2
Garber Poultry Breeding Farm, Modesto, California													
Garber, Calif. (Orange Blossom, Fla.)-------	Fla.	WL	SX	Garber G 200-----	-	2	3	2	2	3	3	2	1	1
Garber, Calif. (Minnesota, Minn.)-----	Minn.	WL	SX	Garber G 200-----	3	3	3	2	2	3	4	3	1	1
Garber, Calif.----------------	Mo.-F.	WL	SX	Garber G 200-----	3	3	3	2	2	3	3	3	2	2
Garber, Calif.----------------	N.J.	WL	SX	Garber G 200-----	3	3	2	2	3	4	4	2	1	1
Garber, Calif.----------------	N.C.	WL	SX	Garber G 200-----	2	3	3	3	3	3	2	2	1	1
Garber, Calif.----------------	Pa.	WL	SX	Garber G 200-----	2	2	3	2	3	3	3	2	2	2

Table 5.--Range group ranking for stock entered in 1970-71 random sample egg production tests--Continued

ENTRY IDENTIFICATION	TEST	BREEDING	STRAIN OR TRADENAME	INCOME OVER FEED AND CHICK COST ($)	EGG PRODUCTION (Hen housed) (No.)	AGE AT 50% PRODUCTION (Days)	GROWING MORTALITY (%)	LAYING MORTALITY (%)	EGG WEIGHT (oz)	LARGE AND EXTRA LARGE EGGS (%)	FEED PER POUND OF EGGS (lbs)	ALBUMEN QUALITY (H.U.)	BLOOD SPOTS (%)
Garber Poultry Breeding Farm, Modesto, California													
Garber, Calif.	Mo.-C.	CGxWL BX	Garber G x 291	1	1	1	1	2	4	3	2	4	1
Garber, Calif.	N.C.	CGxWL BX	Garber G x 291	3	3	2	2	4	3	4	2	3	1
Garber, Calif.	Pa.	CGxWL BX	Garber G x 291	3	2	1	2	3	3	3	2	4	1
Garber, Calif.	Tenn.	CGxWL BX	Garber G x 291	3	1	1	1	2	3	3	3	3	2
Harco Farms, South Easton, Massachusetts													
Harco, Mass.	N.H.	RIRxBPR BX	Harco Sex Link	2	3	2	2	4	1	1	3	2	3
Hardy, C. Nelson & Sons, Essex, Massachusetts													
Hardy, Mass.	N.H.	RIRxBPR BX	Deluxe Sex Link	3	4	3	2	2	1	1	4	1	3
Hubbard Farms, Inc., Walpole, New Hampshire													
Hubbard, N.H.	N.H.	Syn.xNH BX	Golden Comet	1	3	2	1	3	1	1	1	2	2
Hubbard, N.H. (Castlebury, N.C.)	N.C.	Syn.xNH BX	Golden Comet	2	2	3	1	2	1	1	2	2	3
Hubbard, N.H.	Pa.	Syn.xNH BX	Golden Comet	2	2	1	2	2	1	1	1	2	3
Hubbard Farms, Inc., Walpole, New Hampshire													
Hubbard, N.H.	N.C.	WL SX	Hubbard 101	3	3	3	2	3	3	2	2	2	1
Hubbard, N.H.	Pa.	WL SX	Hubbard 101	3	3	4	3	3	3	3	3	2	3
Hy-Line Poultry Farms, Des Moines, Iowa													
Hy-Line, Iowa	Mo.-C.	--- INX	Hy-Line 934	3	3	2	3	3	1	1	1	4	1
Hy-Line Poultry Farms, Des Moines, Iowa													
Hy-Line, Iowa	Mo.-C.	--- INX	Hy-Line 935	1	1	1	1	1	1	2	1	4	1
Ideal Poultry Breeding Farm, Inc., Cameron, Texas													
Ideal, Texas	Fla.	Syn.xWL BX	Ideal 236	-	3	2	2	4	1	1	1	4	2
Ideal, Texas (Minnesota, Minn)	Minn.	Syn.xWL BX	Ideal 236	3	3	3	3	4	3	2	3	3	4
Ideal, Texas	Mo.-C.	Syn.xWL BX	Ideal 236	2	2	2	2	2	1	1	2	3	4
Ideal, Texas	Mo.-F.	Syn.xWL BX	Ideal 236	2	2	1	2	2	2	2	2	4	1
Ideal, Texas	N.C.	Syn.xWL BX	Ideal 236	3	3	2	1	4	2	1	2	4	2
Ideal, Texas	Tenn.	Syn.xWL BX	Ideal 236	1	2	3	4	3	1	1	1	3	2
Ideal Poultry Breeding Farm, Inc., Cameron, Texas													
Ideal, Texas	Mo.-F.	Syn.xWL SX	Ideal 345	3	3	4	3	3	2	2	2	4	4
Ideal, Texas	N.J.	Syn.xWL SX	Ideal 345	3	4	4	4	3	2	3	3	3	2
Ideal, Texas	Pa.	Syn.xWL SX	Ideal 345	3	3	4	4	2	3	3	3	3	1
Indiana Farm Bureau Coop., Indianapolis, Indiana													
Ind. Farm Bur., Ind.	Mo.-C.	WL SX	Princess 55	3	4	3	3	3	2	2	3	1	2
Ind. Farm Bur., Ind.	Mo.-F.	WL SX	Princess 55	2	3	3	3	3	2	2	1	1	2
Ind. Farm Bur., Ind.	N.C.	WL SX	Princess 55	2	2	2	3	2	3	1	1	1	1

Table 5.--Range group ranking for stock entered in 1970-71 random sample egg production tests--Continued

ENTRY IDENTIFICATION	TEST	BREEDING	STRAIN OR TRADENAME	INCOME OVER FEED AND CHICK COST ($)	EGG PRODUCTION (Hen housed) (No.)	AGE AT 50% PRODUCTION (Days)	GROWING MORTALITY (%)	LAYING MORTALITY (%)	EGG WEIGHT (oz.)	LARGE AND EXTRA LARGE EGGS (%)	FEED PER POUND OF EGGS (lbs)	ALBUMEN QUALITY (H.U.)	BLOOD SPOTS (%)
Indiana Farm Bureau Coop., Indianapolis, Indiana													
Ind. Farm Bur., Ind.	Mo.-C.	WL SX	Duchess 60	3	4	3	2	4	2	2	2	1	4
Ind. Farm Bur., Ind.	Mo.-F.	WL SX	Duchess 60	2	3	3	2	3	2	2	2	1	2
Ind. Farm Bur., Ind. (Res. Farm, Ind.)	Pa.	WL SX	Duchess 60	2	2	2	2	3	3	3	2	1	1
Kimber Farms, Inc., Fremont, California													
Kimber, Calif. (Scott, Ontario)	C.C.	WL SX	Kimber K 137	2	2	2	2	2	4	4	2	1	2
Kimber, Calif. (Fla.State & Miami Int., Fla.)	Fla.	WL SX	Kimber K 137	-	2	3	3	2	3	3	1	1	2
Kimber, Calif.	Mo.-C.	WL SX	Kimber K 137	2	3	2	2	3	3	3	2	1	2
Kimber, Calif.	Mo.-F	WL SX	Kimber K 137	2	2	2	3	3	3	3	2	1	4
Kimber, Calif.	N.H.	WL SX	Kimber K 137	4	4	3	3	3	3	3	4	1	3
Kimber, Calif. (Marshall, N.Y.)	N.J.	WL SX	Kimber K 137	2	1	2	1	1	4	4	3	1	2
Kimber, Calif.	N.C.	WL SX	Kimber K 137	2	3	2	3	3	3	3	2	1	2
Kimber, Calif. (Marshall, N.Y.)	Pa.	WL SX	Kimber K 137	4	4	3	2	4	3	3	3	1	2
Kimber, Calif.	Tenn.	WL SX	Kimber K 137	2	3	3	3	2	3	3	2	1	2
Kimber Farms, Inc., Fremont, California													
Kimber, Calif. (Northern, Wis.)	Minn.	WL SX	Kimber K 163	4	4	4	2	4	1	2	3	2	2
Kimber Farms, Inc., Fremont, California													
Kimber, Calif.	N.H.	-- SX	KimBrown	2	3	4	1	3	2	2	3	2	2
Kvutzat Yavne Hatchery, Evtach, Israel													
Kvutzat, Israel	N.H.	WL SX	Yavne 301	1	1	4	1	1	2	1	3	4	4
Lawton, A. C. & Sons, Foxboro, Massachusetts													
Lawton, Mass.	N.H.	RIRxWPR BX	Buff Sex Link	3	4	3	4	3	2	1	4	1	4
Lawton, Mass.	N.C.	RIRxWPR BX	Buff Sex Link	3	3	4	1	2	1	1	4	2	4
Lawton, Mass.	Pa.	RIRxWPR BX	Buff Sex Link	4	3	2	1	1	1	1	4	3	4
Miller Hatcheries, Ltd., Saskatoon, Saskatchewan, Canada													
Miller, Saskatchewan	C.C.	CGxWL BX	Grayline	4	4	4	2	3	2	2	4	4	2
North Central Regional Poultry Breeding Lab., Lafayette, Indiana													
N.C. Reg. Plty., Ind.	Mo.-C.	WL PS	Reg. Cornell Contr.	4	4	4	4	4	4	4	3	2	3
N.C. Reg. Plty., Ind.	Mo.-F.	WL PS	Reg. Cornell Contr.	4	4	4	2	4	3	4	4	3	2
N.C. Reg. Plty., Ind.	N.C.	WL PS	Reg. Cornell Contr.	4	4	4	4	4	4	4	4	4	3
North Central Regional Poultry Breeding Lab., Lafayette, Indiana													
N.C. Reg. Plty., Ind.	Mo.-F.	WL SX	Kentville-Cornell	4	3	3	3	3	4	4	3	2	4
N.C. Reg. Plty., Ind.	N.C.	WL SX	Kentville-Cornell	4	4	4	4	4	4	4	4	3	3
N.C. Reg. Plty., Ind.	Tenn.	WL SX	Kentville-Cornell	4	4	4	3	3	3	3	4	2	3

Table 5.--Range group ranking for stock entered in 1970-71 random sample egg production tests--Continued

ENTRY IDENTIFICATION	TEST	BREEDING	STRAIN OR TRADENAME	INCOME OVER FEED AND CHICK COST ($)	EGG PRODUCTION (Hen housed) (No.)	AGE AT 50% PRODUCTION (Days)	GROWING MORTALITY (%)	LAYING MORTALITY (%)	EGG WEIGHT (oz)	LARGE AND EXTRA LARGE EGGS (%)	FEED PER POUND OF EGGS (lbs)	ALBUMEN QUALITY (H.U.)	BLOOD SPOTS (%)
Parks Poultry Farm, Altoona, Pennsylvania													
Parks, Pa.	Minn.	WL SX	Keystone B-1	2	2	3	3	3	2	2	2	2	2
Parks, Pa.	Mo.-F.	WL SX	Keystone B-1	2	2	2	1	2	2	2	2	3	2
Parks, Pa.	N.H.	WL SX	Keystone B-1	2	1	2	3	2	3	2	1	2	1
Parks, Pa.	N.J.	WL SX	Keystone B-1	2	2	3	4	3	1	1	2	2	3
Parks, Pa.	N.C.	WL SX	Keystone B-1	1	1	2	3	2	2	1	2	3	2
Parks, Pa.	Pa.	WL SX	Keystone B-1	1	1	3	2	2	2	2	1	2	1
Parks, Pa.	Tenn.	WL SX	Keystone B-1	3	3	2	1	2	1	1	3	2	1
Parks Poultry Farm, Altoona, Pennsylvania													
Parks, Pa.	Pa.	RIRxWPR BX	Sil-Go-Links	4	4	3	1	2	1	1	4	2	3
Poultry Breeders Union, Lakewood, New Jersey													
Poultry Br., N.J. (Ferndale, N.Y.)	Fla.	WL SX	Yaniv V-18	-	4	4	4	3	3	3	4	2	4
Poultry Br., N.J.	Minn.	WL SX	Yaniv V-18	4	4	4	4	4	2	3	4	1	3
Poultry Br., N.J. (Ferndale, N.Y.)	N.J.	WL SX	Yaniv V-18	3	3	4	2	2	4	4	3	2	3
Rankins Poultry Farm, Rochdale, Massachusetts													
Rankins, Mass.	N.H.	WPRxRIR BX	Rankin JR-5	3	4	2	4	4	3	4	2	3	3
Ross Poultry, Ltd., Norwich, England													
Ross, Norwich, Eng.	C.C.	WL SX	Sterling Apollo	3	3	1	3	3	1	1	3	4	3
Ross, Norwich, Eng.	N.H.	WL SX	Sterling Apollo	2	2	2	4	3	3	2	1	4	2
St. Augustin Coop. Hatchery, St. Augustin, Quebec													
St. Augustin, Quebec	C.C.	WL SX	Corvette	3	3	3	1	2	2	2	3	2	2
Shaver Poultry Breeding Farm, Galt, Ontario													
Shaver, Ont.	C.C.	WL SX	Starcross 288	1	1	4	1	1	1	1	1	2	2
Shaver, Ont. (Delta, Fla.)	Fla.	WL SX	Starcross 288	-	1	2	3	2	1	1	1	2	2
Shaver, Ont.	Minn.	WL SX	Starcross 288	2	2	3	1	1	1	1	2	2	4
Shaver, Ont.	Mo.-F.	WL SX	Starcross 288	2	2	3	1	2	2	1	3	2	1
Shaver, Ont.	N.H.	WL SX	Starcross 288	1	1	2	3	1	2	2	1	3	1
Shaver, Ont.	N.J.	WL SX	Starcross 288	1	1	3	4	2	2	2	1	2	2
Shaver, Ont.	N.C.	WL SX	Starcross 288	1	1	2	1	1	2	1	1	2	2
Shaver, Ont.	Pa.	WL SX	Starcross 288	1	2	3	2	3	2	2	1	3	2
Shaver, Ont.	Tenn.	WL SX	Starcross 288	1	2	4	2	1	1	1	2	2	3
Shaver Poultry Breeding Farm, Galt, Ontario													
Shaver, Ont.	Pa.	RIR SX	Starcross 585	2	2	1	3	1	3	3	1	3	3

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Table 5.--Range group ranking for stock entered in 1970-71 random sample egg production tests--Continued

ENTRY IDENTIFICATION	TEST	BREEDING	STRAIN OR TRADENAME	INCOME OVER FEED AND CHICK COST ($)	EGG PRODUCTION (Hen housed) (No.)	AGE AT 50% PRODUCTION (Days)	GROWING MORTALITY (%)	LAYING MORTALITY (%)	EGG WEIGHT (oz)	LARGE AND EXTRA LARGE EGGS (%)	FEED PER POUND OF EGGS (lbs)	ALBUMEN QUALITY (H.U.)	BLOOD SPOTS (%)
Tatum Farms, Dawsonville, Georgia													
Tatum, Ga.	Fla.	WL SX	Tatum T-100	-	4	1	3	3	4	4	2	3	4
Tatum, Ga.	Minn.	WL SX	Tatum T-100	2	1	1	3	3	1	2	1	4	3
Tatum, Ga.	Mo.-F.	WL SX	Tatum T-100	3	3	3	3	3	4	4	3	4	3
Tatum, Ga.	N.J.	WL SX	Tatum T-100	2	2	1	1	2	1	2	2	4	2
Tatum, Ga.	N.C.	WL SX	Tatum T-100	2	2	1	4	3	3	3	2	4	1
Tatum, Ga.	Tenn.	WL SX	Tatum T-100	1	1	1	4	2	2	1	1	4	4
Thornbers, Halifax, Yorkshire, England													
Thornbers, Eng.	C.C.	WL SX	Thornber 808	3	3	2	3	3	4	4	2	4	1
Thornbers, Eng.	Minn.	WL SX	Thornber 808	2	1	1	2	1	4	4	2	3	1
Thornbers, Eng.	Mo.-F.	WL SX	Thornber 808	2	2	1	2	1	4	4	2	3	1
Thornbers, Eng.	N.H.	WL SX	Thornber 808	2	1	1	1	1	4	4	1	4	2
Thornbers, Eng.	N.C.	WL SX	Thornber 808	2	2	1	1	2	4	4	2	4	1
Thornbers, Eng.	Pa.	WL SX	Thornber 808	3	3	4	3	2	4	4	2	3	1
Thornbers, Eng.	Tenn.	WL SX	Thornber 808	2	1	2	1	1	4	4	1	4	1
Tokai Poultry Farm, Ltd., Retreat, Cape Province, South Africa													
Tokai, Cape Province	Tenn.	WLxBA BX	Tokai 102	4	3	1	4	4	4	4	4	3	3
Warren, J.J., Inc., North Brookfield, Massachusetts													
Warren, Mass.	N.H.	RIRxRIW BX	Sex-Sal-Link-F	1	2	3	2	2	1	1	2	1	3
Warren, Mass.	Pa.	RIRxRIW BX	Sex-Sal-Link-F	1	1	2	3	1	1	1	1	2	2
Welp's Breeding Farm, Bancroft, Iowa													
Welp, Iowa	N.H.	RIR SX	Welp Line 650	1	2	3	1	1	3	3	2	3	1
Welp's Breeding Farm, Bancroft, Iowa													
Welp, Iowa	Fla.	WL SX	Welp Line 937	-	3	1	4	1	4	4	3	3	1
Welp, Iowa	Minn.	WL SX	Welp Line 937	4	4	1	1	1	4	3	4	3	3
Welp, Iowa	Mo.-F.	WL SX	Welp Line 937	3	3	1	1	3	4	4	3	2	3
Welp, Iowa	N.C.	WL SX	Welp Line 937	2	2	1	1	1	3	3	2	4	2
Welp, Iowa	Tenn.	WL SX	Welp Line 937	2	3	1	1	1	3	2	2	3	4

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RANDOM SAMPLE EGG PRODUCTION TEST ENTRIES AND CONDITIONS, 1970-71

Table 6.--Stock entered in 1970-71 tests

| Breeder | Code | Strain or trade name | Number of entries | Tests entered | | | | | | | | | |
				C. C.	Fla.	Minn.	Mo. C.	Mo. F.	N.H.	N.J.	N.C.	Pa.	Tenn.
Animal Res. Inst.	570	Kentville R. B. C.	1	X									
Anthony	10	Anthony Leghorn	6			X		X		X	X	X	X
Babcock	307	Babcock B-300	5		X		X	X		X		X	
Babcock	405	Babcock B-305	9		X			X	X	X	X	X	X
Babcock	377	Babcock B-390	3	X	X	X		X	X	X	X	X	
Burling	422	Burling Leghorn	1									X	
Burling	361	Golden Tri-Cross	1									X	
Canada Dept. of Agri.	982	P. D. 58	1	X									
Carey	372	Carey's New Nick	3					X				X	X
Carey	30	Carey Nick	1			X							
Cashman	31	Cashman Hi-Cash	3		X		X	X			X		
Colonial	330	True-Line 142	2		X		X	X			X		
Colonial	289	True-Line 365 B	5			X	X	X	X	X		X	
Davis	399	Davis Red	4				X	X	X		X		
Fisher	604	Fisher 105	5	X		X	X				X		X
Garber	66	Garber G 200	6		X	X		X		X	X	X	
Garber	65	Garber Gx291	4				X				X	X	X
Harco	225	Harco Sex Link	1						X				
Hardy	86	Deluxe Sex Link	1						X				
Hubbard	378	Golden Comet	3						X		X	X	
Hubbard	418	Hubbard 101	2							X	X	X	
Hy-Line	96	Hy-Line 934	1				X						
Hy-Line	423	Hy-Line 935	1				X						
Ideal	356	Ideal 236	6		X	X	X	X			X		X
Ideal	412	Ideal 345	3					X	X	X	X	X	
Ind. Farm Bureau	152	Princess 55	3				X	X			X	X	
Ind. Farm Bureau	234	Duchess 60	3				X	X				X	
Kimber	110	Kimber K 137	9	X	X		X	X	X	X	X	X	X
Kimber	419	Kimber K 163	1			X			X			X	
Kimber	428	KimBrown	1						X				

Table 6.--Stock entered in 1970-71 tests--Continued

Breeder	Code	Strain or trade name	Number of entries	C. C.	Fla.	Minn.	Mo. C.	Mo. F.	N. H.	N. J.	N. C.	Pa.	Tenn.
Kvutzat Yavne	427	Yavne 301	1						X				
Lawton	117	Buff Sex Link	3						X		X	X	
Miller	605	Grayline	1	X									
No. Cent. Reg. Lab.	37	Reg. Cornell Control	3				X	X			X		
No. Cent. Reg. Lab.	409	Kentville-Cornell	3					X			X		X
Parks	352	Keystone B-1	7			X		X	X	X	X	X	X
Parks	382	Sil-Go-Links	1									X	
Poultry Br. Union	420	Yaniv V-18	3		X	X				X			
Rankin	426	Rankin JR-5	1						X				
Ross	424	Sterling Apollo	2	X				X	X				
St. Augustin	510	Corvette	1	X									
Shaver	181	Starcross 288	9	X	X	X		X	X	X	X	X	X
Shaver	421	Starcross 585	1									X	
Tatum	401	Tatum T-100	6		X	X		X		X	X	X	X
Thornbers	407	Thornber 808	7	X		X		X	X		X	X	
Tokai	410	Tokai 102	1										X
Warren	305	Sex-Sal-Link-F	2						X			X	
Welp	425	Welp Line 650	1						X				
Welp	290	Welp Line 937	5		X	X		X			X		X

Table 7. --Management, rations, laying house environment, and vaccination provided by tests, 1970-71

Test	Hatched	Age at housing (days)	Length of test (days)	Ent-ries (num-ber)	Replications		Housing management			Sq. feet per bird
					Num-ber	Birds per rep.	Brooding	Rearing	Laying 1/	
Cent. Canada-----	3/31/70	147	502	12	4	65	Litter	Litter	Cage-2	0.45
					4	65	Litter	Litter	Cage-2	.45
Florida ----------	2/7/70	150	550	12	4	70	Litter	Litter	Litter	2.1
					4	24	Litter	Litter	Cage-2	.6
					4	36	Litter	Litter	Cage-3	.4
Minnesota Cage---	3/31/70	154	502	14	3	75	Litter	Litter	Cage-3	.33
Minnesota Floor --	4/2/70	152	500	14	1	100	Litter	Range	Litter	1.5
Missouri Cage----	9/13/69	150	500	14	2	40	Litter	Litter	Cage-2	.67
					5	40	Litter	Litter	Cage-8	.58
Missouri Floor ---	3/1/70	150	500	25	4	60	Litter	Litter	Litter	1.6
New Hampshire---	4/23/70	160	500	21	1	40	Litter	Litter	Litter	2.0
					3	24	Litter	Litter	Cage-3	.5
New Jersey------	3/24/70	150	500	12	1	25	Litter	Litter	Litter	3.2
					1	25	Litter	Litter	Cage-25	1.0
North Carolina ---	3/27/70	150	500	20	2	50	Litter-slat	Litter-slat	Litter-slat	1.7
					2	50	Colony cage	Colony cage	Colony cage-7	.5
					4	26	Colony cage	Colony cage	Cage-2	.6
Pennsylvania -----	4/25/70	150	500	24	2	48	Litter	Litter	Cage-3	.5
					2	50	Litter	Litter	Litter	1.7
Tennessee -------	4/2/70	140	493	14	8	30	Litter	Litter	Cage-2	.45

1/ The numerals after the word "cage" refer to the number of birds per cage.

Test	Entries brooded inter- mingled	Min. oz. / doz. for large eggs	Protein (percent)			Metab. energy [2] (calories/pound)			MC/Cr. Prot. [3]		
			Start	Grow	Lay	Start	Grow	Lay	Start	Grow	Lay
Cent. Canada - Test---	No	24	16.3	10.0	16.8	1270	1290	1300	80.9	124.0	76.5
Control Ration -----			21.8	15.7	16.8	1270	1290	1300	58.0	79.1	76.9
Florida -------------	Yes	23	22.0	15.3	16.5	1340	1371	1313	60.9	78.8	77.7
Minnesota Cage-------	Yes	23	20.2	15.2	17.5	1268	1215	1310	63.0	80.0	74.9
Minnesota Floor ------	Yes	23	20.2	15.2	17.5	1268	1215	1310	63.0	80.0	74.9
Missouri Cage -------	No	23	20.7	16.0	18.2 15.1 13.1	1318	1261	1261	63.7	78.0	73.9
Missouri Floor -------	No	23	20.7	16.1	17.0 15.0	1318	1261	1281	63.7	78.0	75.3
New Hampshire-------	Yes	23.5	20.9	16.0	18.5 to 15.5	1340	1319	1255 to 1337	64.0	82.0	72.0 to 81.0
New Jersey ----------	Yes	24	22.0	----	18.0	1227	----	1144	57.9	----	60.9
North Carolina -------	No	23	20.0	16.0	18.3 to 16.5	1249	1238	1303 to 1335	62.4	77.4	71.2 to 80.9
Pennsylvania ----------	Yes	24	21.0	17.0	18.0	1300[4]	1357[4]	1354[4]	61.9	79.8	75.2
Tennessee ------------	Yes	23	22.0 22.0	16.5 9.0	16.9[5] 16.9[5]	1346 1346	1356 1356	1280 1315	61.1 61.1	76.7 76.7	74.5 98.2

[2] Metabolizable energy is the maximum quantity of feed energy that possibly may be used by the chicken.

[3] Metabolizable calories divided by percent crude protein.

[4] Approximate metabolizable energy computed from productive energy, using 70 percent as the conversion factor.

[5] See Tennessee Test Report for complete ration combinations.

Test	Lighting		Artificial heat used	R Value of insulation material 6/		Ventilation
	Rearing (hours)	Laying (hours)				
Cent. Canada------	(7/)	(8/)	Yes	Ceiling Walls	27.9 15.1	Exhaust fans and in east wall.
Florida -----------	Natural	15	No	Floor House Cage Summer House Winter	None 13.0 8.0	Natural via windows
Minnesota Cage----	12	12 to 16	No	Ceiling Walls	15.8 12.1	Positive pressure
Minnesota Floor ---	Natural	12 to 16	No	Ceiling Walls	15.0 13.0	Exhaust fans
Missouri Cage-----	10	14	No	Ceiling Walls	5.8 None	Ridge vents
Missouri Floor ----	Natural	14	No	Ceiling Walls	15.0 15.0	Exhaust fans in ceiling
New Hampshire----	14	14	No	Ceiling Walls	15.0 15.0	Exhaust fans
New Jersey -------	Natural	14	Yes	Ceiling Walls	1.9 2.4	Exhaust fans
North Carolina ----	Step down.	Step up to 17.	No	Ceiling Walls	7.3 1.5	Natural via windows
Pennsylvania ------	Natural	14	Yes	Ceiling Walls	15.5 15.5	Positive pressure
Tennessee --------	Natural	14	No	Half of house at and half at	4.0 13.0	Winter, Positive pressure; summer, exhaust fans.

6/ Due to variations in type of construction, R Values will be approximate for some tests.

7/ At day old -- 18-1/2 hr.; light decreased 15 minutes per wk. to meet at 15-1/2 hr. at longest day, then natural decrease until 13-1/2 hr.

8/ 13-1/2 hr. until natural increase takes light hours to 15-1/2 hr. in mid-June, then light held at 15-1/2 hr. until end of test.

Test	New Castle		Infectious bronchitis		Fowl Pox		Laryngo-trachitis		Encephalo-myelitis		Coccidiosis control	
	Type	Age (wk.)	Type	Age (wk.)	Type	Age (wk.)	Type	Age (wk.)	Type	Age (wk.)	Type	Age (wk.)
Cent. Canada	Spray Spray	1.5 19	Spray Spray	1.5 12	Wing web.	8	Vent	8	Water	15	Amprol	0-8
Florida	Water Water Water	1,3,10 16,32 48,64	Water Water	1,3 10,16	Wing web.	8	None	--	None	--	Poly-stat	0-8
Minnesota Cage	Water Water	5 14	Water Water	5 14	Wing web.	9	None	--	None	--	Amprol +	0-20
Minnesota Floor	Water Water	5 14	Water Water	5 14	Wing web.	9	None	--	None	--	Amprol +	0-20
Missouri Cage	Water Water	1 6	Water Water	1 6	Wing web.	8	Occular	8	None	--	Poly-stat	0-11
Missouri Floor	Water Water Water	2 7 11	Water Water Water	2 7 11	Wing web.	12	Occular	12	None	--	Poly-stat	0-12
New Hamp-shire	Dust Dust	2 20	Dust Dust	2 20	None	--	None	--	None	--	Cocci-Vac	1
New Jersey	Water	4	Water	14	Feather follicle.	14	Occular	14	None	--	Amprol	8
North Carolina	Water Water	1 16	Water Water	1 16	Wing web.	12	None	--	Water	14	None (slats) Cocci-Vac Trithiodol	-- 1 1-9
Pennsyl-vania	Water Water Water	4 8 16	Water Water Water	4 8 16	None	--	None	--	None	--	None	--
Tennessee	Occular Occular Occular	1 day 10 20	Occular Occular Occular	1 day 10 20	Wing web.	10	None	--	None	--	Amprol	0-20